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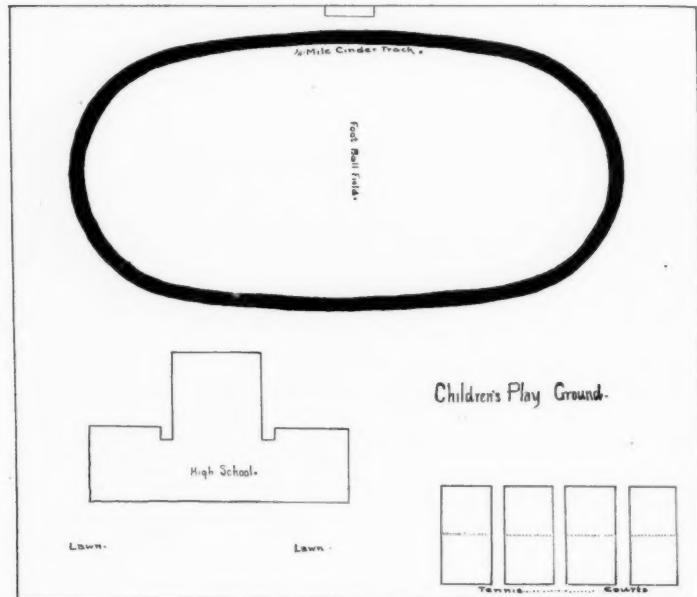
AN ILLUSTRATION OF THE MANAGEMENT OF ATHLETICS IN A HIGH SCHOOL.

ATHLETICS exist, and what is the school to do? It makes little difference whether we can agree that athletic sports are desirable; for in adolescence boys will have their games whether the school approves or not. They will organize teams and play match games, and the school cannot prevent them. A school superintendent making an argument against athletics said: "I have done all I can to prevent football, yet football is the ruination of my school." Unwittingly he had furnished the strongest argument for school direction. Opposition does not prevent athletics; it only renders athletics harmful. It is futile to discuss whether we want to direct athletics; we must do it, and the only practical question is: Just what ought the school to do?

Probably the most helpful answer I can give to this question is to act upon the suggestion of the editor of this paper and tell what the Wausau High School has done. If the conditions fall short of the ideal, they have the virtue of actually existing.

In the first place, the Wausau High School furnishes athletic facilities. The high-school grounds cover seven acres. On the rear portion of the grounds is a quarter-mile cinder running-track which was made by the boys under the direction of their coach; the board paid for the teams and the boys did the shoveling. Inside the track are a football gridiron and a baseball diamond; outside the track are four tennis courts and a playground for

smaller children. In front of the school is a well-kept lawn. If lawn or playground had to be sacrificed, the lawn would be the first to go, but with seven acres there is plenty of room for both. Pupils take a pride in a lawn when it does not encroach upon their right to exercise.

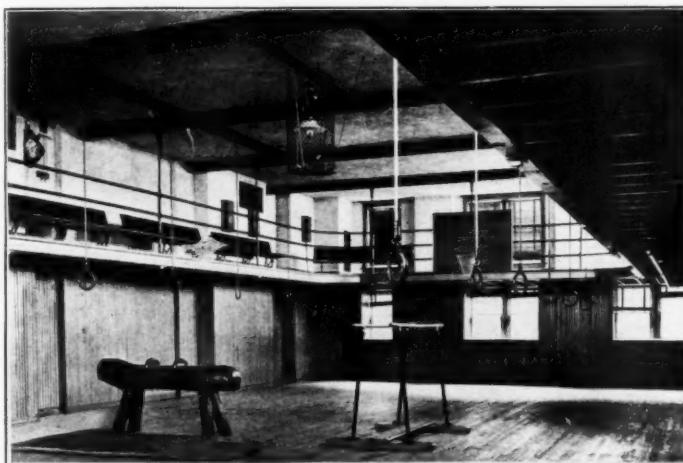


PLAN OF THE GROUNDS OF THE WAUSAU HIGH SCHOOL.

Inside the building is a gymnasium, $74' \times 35'$, fitted with a gallery running-track, basket-ball and indoor baseball paraphernalia, and a moderate amount of other apparatus, such as horse, bars, ladders, and rings. The main corridor furnishes a straight course for a thirty-five yard dash, and is used by the boys for sprints and hurdles after 5 o'clock. The shower-bath rooms are supplied with an unlimited quantity of hot and cold water. The gymnasium lockers back up against the furnaces, so that the clothing will be warmed and dried.

In the second place, the Wausau board of education always

aims to have at least one person in the high-school faculty who is thoroughly competent to assist the boys with their athletic work. Through this arrangement, although the school has not paid for athletic services and has had to depend upon the voluntary services of its teachers, all the teams of both sexes have been coached by competent athletes who have had at heart the best interests of the contestants and the school rather than the winning of trophies. Last year Mr. F. W. Schule taught science in



GYMNASIUM.

the high school and trained himself in the high-school gymnasium and on the high-school track for the A. A. U. meets. At the Milwaukee indoor meet he equaled a world's record, and at the Detroit outdoor meet he was the star, winning three gold and three silver medals. The boys had the privilege of training with him and profited much. Though the high-school team contained little material of promise, it won the Lawrence cup in competition with about twenty schools at Appleton.

In the third place, the school controls its athletics strictly in accordance with the rules of the Wisconsin Interscholastic Athletic Association. This association has a membership of about eighty schools, including all the most important ones of the

state. The annual business meeting of the association is held at the time of the meeting of the State Teachers' Association, and each school holding membership is entitled to one vote, which must be cast by its principal or his authorized representative. This meeting adopts rules, audits accounts, and elects a board of control of three members, who execute the rules and manage all affairs of the association for the ensuing year. One member is chosen each year for a term of three years, and the senior member is chairman. Membership in the association is limited to high schools of Wisconsin, and a member is bound to adhere to the rules in all interscholastic athletic contests, and to play no Wisconsin high school that is not a member unless permitted to do so by the board of control. The association holds an annual field meet at Madison the last Saturday in May, and this is the big interscholastic event of the year. The meet has always been successful; every contestant has been paid his car fare in full and given an allowance for other traveling expenses. Last year gold, silver, and bronze medals were also awarded the point winners.

A Wisconsin school desiring to take part in athletics is forced to be a member of the association and live up to its rules. For a violation of the rules in any athletic event a school is excluded from the Madison meet, and may be suspended for a year and prevented from playing with members in any line of athletics.

The principal of the high school is the only person recognized by the state rules; he is made manager of his teams, and is authorized to exclude any contestant from his teams whose conduct or character is unsatisfactory to him. The whole tenor of the rules is to make the authority of the principal supreme over the athletics of his school, and to discipline any school where the boys break away from the principal's control or where the principal fails to hold his school to the rules. The rules require a contestant to be a *bona fide* member of a public high school; he must be under twenty-one years of age, and must have obtained a passing average on full work (at least fifteen recitations per week) for the current term and also for his preceding term in school. This last provision is the most effective of all

—for it prevents a boy who drops school at the close of an athletic season from competing again until he shall have attended a full term with satisfactory record, and it prevents a boy from getting negligent about his work in the term in which he does not engage in athletics, as well as in the term in which he does.

At Wausau the high-school principal personally manages all teams, arranging games, signing contracts, and accompanying teams on their trips. The teams elect their own captains, but



FROM THE ASSEMBLY HALL WINDOW.

contestants are picked and positions assigned by the high-school assistant who coaches the team. The boys are consulted on important matters and are made to realize that athletics are their activity; they must show their interest by doing everything in their power to organize and develop successful teams and to make the finances come out right. The school will then do all it can in a legitimate way to assist; the school will control athletics, but will always control in the spirit of fairness to every individual and in the interest of clean sport.

Athletic teams are maintained whether there is winning material or not; for athletics do not exist for the glorification of the school, nor does the school exist for the purpose of directing

athletics—both exist for the proper development of youth, and they should work harmoniously together for the same ends.

Two twenty-minute periods per week of gymnasium work are required of every pupil of the high school and eighth grade, excuses being granted only on doctor's certificate or because of membership in an athletic team. This work consists chiefly of Swedish movements that do not require a change of clothing. One girls' class, in which membership is elective, is allowed to



PORITION OF FOOTBALL FIELD.

put on gymnasium garb and use apparatus. The gymnasium classes are conducted during the school hours in the middle of the forenoon session and before the close of the afternoon session.

All other athletic work is voluntary. The gymnasium is open during the winter months from 4 to 6 o'clock on school days and on Saturday afternoons. A teacher is always in charge of the gymnasium when it is open; pupils turned loose to run riot in a gymnasium may get harm instead of good from their exercise.

The voluntary work naturally takes the direction of games. In the fall the boys play football and the girls play tennis. These sports end at Thanksgiving and basket-ball starts, the

gymnasium periods being divided equally between the sexes. All who desire to play are given a chance, and the result of the competition is the formation of four class teams of each sex. As these teams take final shape slowly, a considerable number of pupils are kept interested. Each team is given two forty-minute periods per week for practice. At the end of the first semester (about the first of February) class tournaments are held which



CORRIDOR SET WITH HURDLES.

are the principal athletic events of the winter. Each sex has one night, and a schedule of short games is played for class championship. Sometimes faculty teams of both sexes are formed from high-school and grade teachers and compete in the class tournaments. This adds to the interest of the tournament, and the faculty has suffered no loss of dignity by the competition. After the class tournaments, first teams of both sexes are formed which occasionally play outside games. But a first team tends to monopolize the gymnasium and is of questionable value. The girls at first played basket-ball under the same rules as the boys, but this proved too hard for some of the girls. So girls' rules were adopted, which divide the gymnasium floor into

three sections, require each player to remain in her section, and prohibit snatching the ball from a player. At first the girls objected to the restrictions, but soon realized that under girls' rules team work was better, and the exercise was less severe and more beneficial. Teams of opposite sexes are never allowed to play together; and it has been found desirable, when one sex has the gymnasium for practice, to exclude the other sex; but the class tournaments and interscholastic contests of both sexes are public exhibitions. In the spring, boys turn to track athletics, training outdoors whenever possible and indoors in bad weather; the girls play tennis outside, and baseball in the gymnasium.

Boys' baseball teams were maintained for a few years; but it was found difficult to maintain track and ball teams at the same time, and the latter were abandoned. In Wisconsin high schools baseball has almost died out, while track athletics is of supreme interest in all parts of the state. Baseball is still played on the field in an unorganized way. Last year boys' basket-ball was also dropped, as the boys preferred to train in track work with Mr. Schule. Much benefit was received from this work, but a boys' basket-ball tournament will probably be held again this year. A military company was maintained during the Spanish war, while the boys' interest turned naturally to military affairs. The company was equipped with wooden guns made especially for the purpose by a local factory.

Before a pupil is allowed to compete in any interscholastic game he is required to file a written permit from his parents. This makes a better relation between the home and the school, and frequently, when a parent is asked by his child for a permit, he looks the matter up, and comes to see the value of athletics to his child, and his attitude will change from potential opposition to active support. In case of doubt as to a child's physical fitness for games, assurance from a physician is required; systematic physical examination of all pupils is desirable, but has appeared to be impractical in a public school.

The community has been well paid for its expenditure. It is always difficult in education to measure results of a course of

training of any kind, but some cases of physical development have been marked; for example, a boy apparently much below the average in physical endowments was so developed by two years of conscientious training that he performed the greatest feat of endurance ever done at the Wisconsin State Interscholastic Meet, winning within three hours the mile in $4:42\frac{2}{3}$, the half-mile in $2:06$, and the first quarter of the mile relay. The same



LAWN WITH TENNIS COURTS IN DISTANCE.

summer at the National Interscholastic Meet at Buffalo he won the mile and took second in the five-mile, being beaten by an Indian.

But athletic work not only improves the body, it gives greater vigor to mental work. A sluggish mind is often aroused to a sense of mastery on the athletic field, and, finding it can excel on the gridiron, wakes up and does well in the class-room. The boys are made more manly. It is beneath the dignity of an athlete to tease a cat or play small tricks on the teacher. Pettishness is worked out; the mind is filled with nobler aspirations. The girls are made more robust and vigorous, and walk more gracefully, but lose nothing of the finer womanly qualities.

Gymnasium exercises render tight lacing impossible; no verbal precept is necessary.

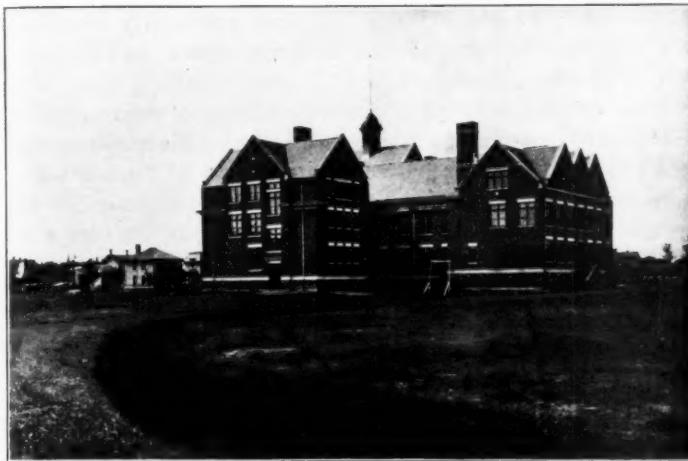
Some will ask: "How about accidents?" The Wausau High School has had more than its share of broken bones, but the boys all recovered fully and were the better for their training. The only cripple in the school received his injury while a spectator at a shinny game. An investigation by the board of control in 1902 as to injuries in Wisconsin high schools showed that the accidents received in football were less numerous and less severe than the injuries received in the unnoticed game of shinny.

Yet the danger to American boys is not in physical injury, but in moral degeneration. Arnica will cure bruises and broken bones will knit, but the drunkard will not forsake his ways nor the cigarette fiend his cigarettes. For a boy to be killed in football is so rare an occurrence as to be published from one end of the continent to the other, but for a boy to travel the beaten path to ruin through the saloon door is too common an occurrence to make a news item for a country weekly.

John and Will are two boys you all know. John plays football from 4 to 6, and goes home bruised and bloody. He rejects sympathy; all he wants is his supper and a chance to crawl off to bed. His mother says to herself: "This must stop! I will see the school board and the Humane Society!" She ought to be thankful that he is safe in bed for one night at least. Will plays pool from 4 to 6, and the animal energy within him is not spent. After supper he cannot study, he must do something. So he goes up-town, plays another game of pool, smokes a cigarette, swaps stories in front of a theater, and returns home, with his clothes in perfect order, his hair parted nicely in the middle—his mother's very ideal of manly beauty. But John is plodding the rugged road to sturdy manhood, and Will is headed down the swift road to destruction.

The high-school age is essentially the age of adolescence; and in adolescence, heredity appears as a factor of prime importance in a child's life. The sins of his fathers even unto the third and fourth generation appear in the boy and struggle for the mastery. The school cannot always talk frankly with the

parents on this subject. When a parent says, "I don't know what to do with my boy, he seems full of the very old Nick himself," the school can hardly respond: "It is even so; but you must be patient with Johnnie, for heredity is coming out strongly." But the school must not shut its eyes to this most important fact in the child's development; it must help the child to overpower evil hereditary tendencies and to strengthen inher-



THE CHILDREN'S CORNER.

ited virtues. The best way to cleanse the boy's mind and body is to give him plenty of vigorous exercise and follow it up with a bath. "But," someone says, "exercise is all right, but he ought to take it at home at the woodpile." While that highly useful form of exercise should by no means be discouraged, yet a game that calls forth alertness of mind, arouses enthusiastic interest, and gives food for healthful thought in leisure moments is a better mental tonic.

Because heredity makes athletic work so essential to the child in adolescence, it is proper that the largest portion of money for grounds and apparatus be given to the high school. But ample grounds should be provided for the unorganized play of grade

children. Of the six ward buildings at Wausau all but one have over an acre of playground, and the site for a new building covers six acres. The largest ward building is provided with gymnasium and hot and cold shower-baths.

"But the playgrounds cost money." Of course they cost money; everything good in education does; but when the schools by proper direction of the play of the pupils can demonstrate the real value of athletic work, the money will be forthcoming; for the average American community is willing to spend liberally for education whenever it can see that it is getting its money's worth.

Now, what is better worth an expenditure of money than a course of training that will make boys and girls into vigorous men and women, with plenty of physical courage and physical endurance for the labors of life? The world has little use for the anæmic philosopher; it wants men with that abundance of good spirits, hopefulness, and energy which comes with the perfection of physical condition. Athletics are worth all they cost; they should be encouraged; they must be controlled.

C. C. PARLIN.

WAUSAU, WIS.

THE FINAL EXAMINATIONS, OR EXAMINATIONS OF Maturity, AT THE GERMAN GYMNASIUM AND REAL-GYMNASIUM.

IT has long been a matter of controversy, and is indeed being actively debated in some parts of Germany today, whether the pass-examination, as it is called in England, or the final examination, as it is termed here, is necessary. The opponents of the examination system assert that after having had pupils for some nine years teachers ought to be well acquainted with their mental powers, with their excellencies and their weaknesses, and be prepared to pass a fairly just estimate upon their characters and abilities. In the fear of this examination boys try to cram their heads with knowledge, sit up to unseasonable hours, and live laborious and worried days; still others, who are less timid and more resourceful, manage to display on the examination an amount of knowledge which is decidedly disproportionate to the amount displayed in their daily class work. As a result of this very apparent injustice the zealous, plodding boys are turned from their method of work and are led to depend upon the lucky chance which they see has helped out their more acute companions.

The adherents of the system, on the other hand, say that the whole life is a continuous trial to which the boys must be early accustomed. The world wants men of ready wit, men with presence of mind, not to be disturbed by any danger or obstacle. The examination of maturity is therefore a test whether those boys are *mature*—ripe for life. It is at the same time a bar to the injustice which may be found even among schoolmasters. They are human, they have their weaknesses, these rulers of the class-room, and it too often happens that when a boy has had the misfortune to touch one of their weak points, the teacher is inclined to revenge himself by giving that pupil a lower mark; this injustice is partially done away with by the examination system. It was reported that once his teachers had resolved to

pluck a boy who had been lazy and who had the impudence to present himself for the examination. His papers had been rather weak, but he managed to escape failures, so the board of examinations was obliged to admit him to the oral examination. In this test he came off better than his companions, for, accustomed to making but little preparation for his lessons, and therefore relying upon his ability to organize his knowledge at a moment's notice, he was not at all surprised at seeing passages of Tacitus and Euripides before him which he had never before seen. He simply applied himself to the day's work as he had been accustomed to do under similar circumstances in term time, and was fortunate enough to make an excellent showing. Of course, such instances are comparatively rare, but they point a moral which is worth while taking into consideration.

At the beginning of the Easter term, which includes the time from Christmas to Easter, the names of the examinees, with the marks they may have obtained from their teachers, are sent to the privy councilor of the state secretary of public instruction. This high official appoints a president or chairman for the board of examinations at each school. This president is either a professor of the university or the head master of the school. The board of examination consists of the teachers who have instructed the examinees during the last year that precedes the examination. About a month or six weeks before Easter the written examination begins. The subjects for the different branches of science and languages in which the students are to be examined are given out by the examiners, but they are bound by their oath of office not to give subjects that have already been studied by the pupils. These subjects are all "unseen." The examiner would lay himself open to the charge of fraud if he chose a subject that was known to the examinee, and such an action would result in the loss of his position. In this respect we differ radically from our neighbors across the Channel. In England the subjects of the examination are made known to the examinee six months before the time set for the examination; in Latin, for instance, the second book of Virgil's *Aeneid*, in Greek certain books of Xenophon's *Anabasis*, in physics the chapters concern-

ing dynamics, etc. Then the pupils direct their attention to the subjects indicated and those alone. There are "unseens," too, but they are comparatively easy. In another most important point we differ, namely, concerning the examiners. In England there is a board of examination for each three or four counties. These boards travel from school to school, and no teacher is allowed to examine his own pupils. This seems to indicate that the English custom is more likely to be superior on the side of impartiality; in reality, however, it has several very considerable disadvantages. In the first place, the parents of the pupils are obliged to pay for this examination, whereas in Germany the examinations cost nothing, inasmuch as they are a part of the duties of the teacher. The system in England also makes it possible for the examiner to be approached by interested parties on behalf of a candidate, whereas in Germany the whole board of teachers is obliged to read all the compositions and all the papers in every branch of the examination, and to pass an opinion upon each. The chairman looks over all these results and passes the final opinion. Again, the English system implies a certain distrust of the teacher; else why should outside examiners be brought in? In this respect also it seems to me that the German plan is better and is likely to be attended with more accurate and just results, as well as establishing and maintaining a better relationship between teacher and pupil.

When the written examination is finished, the papers are corrected by the teacher and are circulated among the members of the board. This done, they are sent to the president, who is obliged to peruse them. When the day of the oral examination has come, there is first a conference or meeting of the whole board in which the results of the written examination are discussed. If a pupil has written papers which are considered by the examiners to be poor, he may be excluded from the examination. The gradation of students is as follows: Class 1, very good; Class 2, good; Class 3, sufficient; Class 4, insufficient. Before the oral examination the chairman explains to the board of examiners the rules and regulations that ought to govern their conduct. He reminds them that the result of the examination

of the candidate is decided by the majority of the votes cast, and that his only privilege is to decide in case of a tie. He also impresses them with the fact that they must decide on the merits of the case before them, and not be influenced in their judgment by any knowledge of the candidate's history. The examination in a science or a language lasts generally one hour, and the subject must be an "unseen." In history and religion, however, it is possible for the examiner to choose subjects which have been treated in the class during the two preceding years. In Latin, French, Greek, or English, the examiner selects passages from Cicero, Molière, Thucydides, and Shakespeare, and grants from three to five minutes to the candidates to look over the selections. If, however, a boy has taken a first-class stand in the written work, he may be excused from the oral examination. The examination over, a conference is held on the final marks which the examinee shall get, and as soon as a decision is reached the young man is called in. This is a very interesting time for him, and his face generally indicates his feelings.

The following subjects and problems were given at a German *Real-Gymnasium* in the final examination in writing, Easter, 1902:

1. German essay: *Der Mensch ist selbst sein grösster Feind* ("Man is the greatest enemy to himself").
2. Latin: Translation from Cicero, *De finibus bonorum et malorum*, Liber I, chapter 20, pp. 65-68.
3. French composition: *Cyrano de Bergerac*, par E. Rostand, un Mirior der siècle du Louis XIV.
4. English translation (from German into English); Schiller, *History of the Thirty Years' War*.

"Turenne, fettered by the instruction of Mazarino, who had seen with jealousy the warlike prowess and increasing power of the Swedes, excused himself on the plea of a pressing necessity to defend the frontier of France on the side of the Netherlands, in consequence of the Flemings having failed to make the promised diversion. But as Wrangel continued to press his just demand, and a longer opposition might have excited distrust on the part of the Swedes, or induce them to conclude a private treaty with Austria, Turenne at last obtained the wished-for permission to join the Swedish army.

"The junction took place at Giessen, and they now felt themselves strong enough to meet the enemy. The latter had followed the Swedes into Hesse,

in order to intercept their commissariat, and to prevent their union with Turenne. In both designs they had been unsuccessful; and the Imperialists now saw themselves cut off from the Maine, and exposed to great scarcity and want from the loss of their magazines. Wrangel took advantage of their weakness, to execute a plan by which he hoped to give a new turn to the war. He, too, had adopted the maxim of his predecessor, to carry the war into the Austrian states. But discouraged by the ill success of Torstensohn's enterprise, he hoped to gain his end with more certainty by another way. He determined to follow the course of the Danube, and to break into the Austrian territories through the midst of Bavaria. A similar design had been formerly conceived by Gustavus Adolphus, which he had been prevented carrying into effect by the approach of Wallenstein's army, and the danger of Saxony. Duke Bernard moving in his footsteps, and more fortunate than Gustavus, had spread his victorious banners between the Iser and the Inn; but the near approach of the enemy, vastly superior in force, obliged him to halt in his victorious career, and lead back his troops. Wrangel now hoped to accomplish the object in which his predecessors had failed, the more so, as the Imperial and Bavarian army was far in his rear upon Lahn, and could only reach Bavaria by a long march through Franconia and the Upper Palatinate. He moved hastily upon the Danube, defeated a Bavarian corps near Donauwerth, and passed that river, as well as the Lech, unopposed. But by wasting his time in the unsuccessful siege of Augsburg, he gave opportunity to the Imperialists, not only to relieve that city, but also to repulse him as far as Lauingen."

5. Elementary mathematics.

- a) To construct a triangle of which the base c and its opposite angle b are given, and in which the sines of the angles lying at the base are in the proportion of m to n . $c = 5\text{ cm}$; $b = 60^\circ$; $m = 2$; $n = 5$.
- b) On the area of an equilateral cone a hemisphere is constructed: In what proportion are the contents (a) of the cone, and (b) of the hemisphere, divided?
- c) At the age of thirty years a man deposits in a bank 5,000 marks, bearing interest at 3 per cent., intending to add the sum of 500 marks at the end of every year until the same has grown so as to yield him a semi-annual interest of 1,000 marks from the end of his sixtieth year for eighteen years. How long must he continue his payments, and what sum must he pay at the end of the last year?

6. Analytical geometry.

- a) From the points of intersection of the two straight lines $5x - 8y + 86 = 0$ and $x + 6y - 45\frac{1}{2} = 0$ the tangents are drawn to the circle with the center (-42) and the radius 5. How long are these tangents, and what angle do they inclose?
- b) In an ellipse with the half axes a and b the normal line shall be fixed

by construction and calculation which halves the major half-axis. What condition must a and b fulfil to make the problem capable of solution?

c) In a hyperbola, the chord $B C$ is drawn vertically to the major axis, and B is joined with the vertex A , C with the other vertex A' . $A B'$ and $A' B$ intersect each other in P . Where does P run if $B C$ is put off parallel to itself?

7. Physics.

a) A stone is dropped into a well. After 4.8 seconds it is heard to touch the bottom. How deep is the well? Average degrees of temperature of the air 7°C .

b) A cyclist approaches an open whistle of 20 cm length with a rapidity of 15 miles per hour; the whistle is blown with lighting-gas of 27°C ., and produces its first overtone. What tone will he hear when he approaches the whistle, what when he withdraws from it?

c) A compound microscope has an object-glass which consists of two equal lenses touching each other. Each of them has a focal distance of 1.8 mm. The ocular glass is formed by a magnifier, consisting of two equal planoconvex flint-glass lenses, which are 1 cm distant from each other and ground (cut) with a radius of 4.8 cm ($ne = 1.62$). The length of the tube is equal to the distinct scope of vision (range of sight) = 25 cm. How great is the magnifying power of the microscope?

The time granted to the examinees for each branch of the examination varies from three to six hours; German, French, and mathematics, six hours; the rest generally four hours.

OSCAR THIERGEN.

DRESDEN, GERMANY.

THE LABORATORY METHOD IN THE SECONDARY SCHOOL.¹

THE last few years have wrought great changes in teaching in general, and in mathematical teaching in particular. Very few of us would refuse to admit that most of these changes are in the direction of marked improvement. The number who regard mathematical teaching incapable of improving is diminishing year by year. The changes referred to are both the cause and the effect in large degree, of the extensive establishing of normal schools and of departments of education in connection with the leading colleges and universities, and to the consequent awakening of the general public to an active interest and participation in the administration of school systems and of school work. American teachers are the beneficiaries of the stimulus of an enlightened public opinion on school matters to an extent hitherto unheard of in any other age or country. As a result there are more good teachers and good teaching today than the most sanguine student of education of ten years ago would have dreamed of. The progress of the last ten years has been without a parallel in our educational history, and "forward and upward to higher and better things" are the watchwords of a host of mathematical teachers.

It has been longer than twenty years since the faculties of American universities and colleges generally began to conceive their function in American civilization to be threefold; viz.: to conserve, to disseminate, and to extend the world's present store of knowledge. It has been hardly ten years since universities became fully conscious of practical consequences springing from the last two phases of their duty. Because it was cheaper, easier, more dignified, and required less will power to perform the offices of conservator than those of the disseminator and

¹ Read before the Mathematical Club of the University of Chicago, August 21, 1903; at the close of the address a number of home-made mathematical apparatus were exhibited and explained.

investigator, the former until very recently were magnified in all but a very few institutions almost to the total eclipse of the latter. As a result, most of our university and college faculties even today comprise many enthusiastic curators, comparatively few progressive teachers, and but very few energetic investigators. Consequently, in the mental make-up of the typical mathematical teacher of today the elements of conservatism, of pedagogical progressiveness, and of research enthusiasm enter about in proportion to the number of members of university faculties representing the three phases of the university function.

But the extensive establishment of normal schools and of university departments of education among us is rapidly shifting the center of gravity of attention of both the educational clergy and laity to the last two offices. Teachers—mathematics teachers—even now show a general tendency to define the boy as the “young man,” the immature man, and not as the “little man,” as was their wont until recently. They have already learned the pedagogical unsoundness of the sentiment;

“Men are only boys, grown tall,
Hearts don’t change much after all.”

as applied to the heads and have even cast grave suspicion upon it as applied to the “hearts.” They have proved that its truth would be enhanced and its poetical effect not greatly reduced by changing it to run:

Men are not mere boys, grown tall,
Heads do change much after all.

Speaking more prosaically, it has been conclusively demonstrated that the teacher cannot prescribe successfully for the boy by first ascertaining the proper dose for the adult and then reducing it. For the immature patient due regard must be given to quality as well as to quantity. This change in men’s views, which is both the cause and the effect of the establishment of the institutions mentioned above, epitomizes the changes now making in mathematical education. The consequences of these changes are the really significant matters for modern education, notwithstanding the unfortunate fact that the small place given to their study and discussion on the programs of the National Educa-

tional Association and of other educational bodies might lead the unwary to believe them to be of little moment compared with matters relating to school administration, which usually usurp the lion's share of the time and energy of these meetings. It is, however, gratifying to note that the little time that is grudgingly assigned to these more consequential matters is sufficient to show an increasing liberality and progressiveness among practical teachers, which some of the leading exponents of educational administration would do well to emulate.

The general open-mindedness to progress and disposition to facilitate it have perhaps been seen at their best among science teachers and scientists. Untrammeled by traditional ideals and unhampered by methods of instruction inherited from an outgrown past, when science courses were introduced into school curricula a few years ago they had before them, in very large measure, a clean page on which to begin the new chapter they were destined to write in the history of nineteenth-century educational method. As a consequence, the closing quarter of that century beheld such a shifting and sifting of educational ideals and practices, such a complete realignment of educational forces, as has hardly been witnessed before in the history of human thought. The old skins of methodology were no longer able to contain the new wine of the modern subjects, and there rapidly sprung up in education what soon came to be known as the *scientific method*, or the *method of science*. The virtue of the new method soon came to be recognized generally by leading teachers in other than scientific fields. We have, indeed, grown familiar with the phrases, the scientific method of Latin, of Greek, of grammar, of history, of law, of economics, of pedagogy, of music, of morality, and even of art. Indeed, the range of uses and of abuses of the phrase "scientific method" has become so great as to render well-nigh hopeless the attempt to define its content with all embracing adequacy.

But whatever the phrase may be understood to mean in the multifarious connections in which it does service nowadays on the title-pages of text-books, when applied to the sciences the "scientific method" connotes at least two important notions.

Induction as a thought-process and laboratory instruction as an external agency in founding and facilitating this process are perhaps the dominant ideas of the method in question. It is the contention of the present paper that much fuller conformity to these two notions in mathematical teaching than has yet been attempted would result in the greatest good in secondary teaching. The particular purpose of this article is to gather together some of the main reasons for the extensive use of the laboratory feature with high-school pupils and to give a few general indications as to the way to use this feature with high-school classes.

It is trite in theory, though not in practice, that the prime requisite of any method of teaching immature pupils should be psychological, rather than logical. But even at the risk of doing violence to this well-known principle at the outset of my discussion, it seems well to begin by giving some definiteness to the idea under discussion. Let us then consider for a moment the oft-repeated query of the mathematical teacher: "What is the laboratory method anyhow?"

As suggested above, to undertake to define adequately any notion which, like the one in question has gained professional currency in both original and figurative senses, in such a way as to be generally acceptable to those who use it, would be as unwise as it is useless. This is particularly true of a notion with which common usage has fully familiarized us and of which we have a better working understanding before than after defining it. Furthermore, with an idea such as is contained in the phrase "laboratory method," which in its administration is capable of a wide latitude of legitimate interpretation and variation, precise definition is not only passively futile, but may even be positively harmful. To define too precisely an idea none too precise in itself invites the shafts of the constitutional critic and helps him get his target in range. Just now mathematical teaching needs something more positively constructive than either criticism or conservatism. Finally, the essence of the idea is obvious. Fundamentally, laboratory method means *work*—*work on the pupil's part*—or, better still, *method of getting work done by the pupil on his own initiative, under the impulse of his natural interests*,

and largely under the guidance of his own intelligence. The laboratory method merely condenses to its essence the old, but ever new pedagogic maxim: "Learn by doing, and do while learning."

In mathematics, the method of the laboratory calls to the traditional formalist an abrupt, "About, face!" It commands him to face knowledge and knowledge-getting from the standpoint of the learner, rather than from that of the master. On so broad and solid a pedagogical platform as this, certainly every live teacher—every teacher with a forward rather than a backward yearning—can find a place to stand. Indeed, one of the strongest arguments for the introduction of the laboratory idea in mathematics teaching is its flexibility—its capability of adaptation to the requirements of so wide a range and variety of conditions and situations.

Granting at once that mathematics is essentially abstract, that in the measure in which the pupil is bound to the concrete he is not a mathematician at all, it must nevertheless be admitted by all who have had much contact with high-school classes that the thought processes of the secondary pupil become mathematical very slowly. Mathematical method is the method of the adult to a degree not generally recognized in actual teaching. The secondary pupil is only beginning to become reflective, and even so far as his habits of thought are reflective, they are very far from analytically reflective. His normal interest is chiefly concerned with vague *subjective* wholes, much as the early elementary pupil finds his chief interest in vague *objective* wholes. Here as elsewhere interest is an index of capability. There is therefore but feeble native power in the early secondary pupil to deal profitably with the analytic and synthetic products of reflection. To undertake to force the exercise of mathematical reflection prematurely is in its first stages distasteful to the pupil, and finally disgusting and stultifying to him. This is just what our early foisting of abstract mathematics upon him too often does for him in practice. Talk as learnedly as we please to him, he still persists to live in the world of things. During the first two years of the high school the student is able to seize thought-relations only by a very slender thread of analogy to

thing-relations. If his experiential knowledge of things is meager, as is more often the case than most teachers think, his foothold is well-nigh as uncertain as his footsteps, and under such circumstances, he can never hope to lay vigorous hold on mathematical truth and method. The laboratory method, in the language of the scientists—who are best qualified to speak on this subject—means “work with things and ideas about things on the basis of clearly comprehended premises, under the stimulus of a clearly conceived purpose, and under the guidance of a teacher who has been over the road the pupil is traveling.” We have long since outgrown the notion, once quite general among teachers, that artificial difficulties are superior to natural difficulties as instrumentalities for seasoning and toughening mental fiber and sinew. An advantage that can hardly be overestimated of the laboratory procedure with mathematical classes is that pupils *sense* the difficulties to be overcome as *real* and *natural*, actually needing to be resolved and demanding a knowledge of the mathematical tool as a means of their resolution. In short, it recognizes the educational importance of letting the student know both *how* and *why* he must use the mathematical tool to get on well in any line of study.

With the secondary pupil, to be continually baffled, or too frequently defeated, is discouraging to the point of disheartening. The secondary pupil is inordinately sensitive to failure. With him success is emphatically the mother of achievement. The successes need not be great, but they must not be too long postponed. It is too much to expect him to keep up his interest in mathematical study merely in the hope of some future good, dimly perceived by him if at all, in the face of uninterrupted failure. It is only the mendicant, or the moral weakling, who is satisfied to remain the subject of alms-giving. The laboratory in mathematics derives no inconsiderable part of its merit from the circumstance that it furnishes a goodly crop of those minor successes along the way that are so indispensable to the secondary pupil in keeping up the tension between effort and ideal by giving him more than the occasional feeling that if he is not yet independent he is at least gaining in independence.

A view formerly held quite widely by high-school superintendents and mathematical supervisors, and which, though still extant, is rapidly yielding to rational thought, is that a multitude of pedagogical sins are covered in a mathematics teacher of whom it may be said "he gets the work done." Usually also this phrase means that an assigned number of problems, topics, or pages are covered. We have at length come to see the truth—though we do not yet realize to the full the consequences of our seeing—that school work done under the stimulus of the ferule and rattan, even though these ancient pedagogical insignia give place to the dread of ever-impending failure or to the more modern insignia of the acid face and astringent tongue of a teacher—school work done under the mere task-master is now understood to be of the lowest value of all. The *way of getting school work done* is of much more consequence than is the mere doing of it. Is the work purposeful? and, Are the workman's acts conspicuously purposive to both teacher and pupil? are the all-important questions for education. All other work is drudgery and degrades both teacher and pupil. The motiveless mathematics teacher is always resorting to mechanical drill. The real teacher gets better results with little or no formal drill, by filling all his work, drill included, with purposeful interest. Not work, but the right kind of work, educates in the mathematical class-room as everywhere, and this is what the intelligently conducted laboratory secures.

We mathematical teachers have become noted, not to say notorious, for our persistent and strenuous insistence upon the high value of mathematical study, as a discipline in clear thinking. But we need to remember that here again it is not thinking, even though it be clear, but the right kind of clear thinking, that educates. Clear thinking about the number of \$5 bills needed to cover a town lot of given dimensions is of no great educational value. Thinking that does not eventuate in right doing is also of inferior educative value. In the last analysis it is the strong will, the healthy conscience, and the facile hand quite as much as the clear head that count in realizing the ends of education. This may be pedagogical commonplace in many

school subjects, but it is not so in mathematics. The most telling weakness of current mathematics teaching is that it makes so feeble an appeal to the will. Most mathematical subject-matter is morally colorless, and instruction which addresses itself almost exclusively to the intellect affects character but feebly at best, and when, as is too often the case with much mathematical instruction, the memory alone is appealed to, the result is a searing over rather than a quickening of the mental faculties. What is most needed in mathematics in the schools today, and particularly in the secondary school, is a subject-matter which makes an all-around appeal to the student, which, without neglecting the perceptive and rational faculties, will reach the will and result in strengthening the executive faculties. The laboratory in secondary mathematics calls for right-doing as well as right-thinking. It materializes the quantitative study of things and relations about things, calls for the *acts*, not the results merely, of perception, analysis, synthesis, inference, and generalization, thereby reducing to the habitual those particular mental processes which characterize the mathematical investigator. In this work the whole individual must engage, senses, hand, and head being enlisted vigorously and continually.

But, says someone, consideration of economy of time and energy on the pupil's part make it advisable for the mathematical master to abstract the subject-matter from the confusing details of the concrete situations which call for mathematical treatment. In other words, we are reminded that the teacher should do the generalizing and abstracting and assorting of the mathematical ideas, to the end that the learner may concentrate his forces against the mathematics as such. This is strictly equivalent to saying that, since the body needs a certain quantity of albumen, of proteids, of fat, of starch, of oxygen, of nitrogen, and of hydrogen for its proper nourishment, the best dietetics demands that all these substances be taken into the system in their unmixed and elemental purity. But physical food, so taken, is neither so appetizing nor so nutritive as when the food constituents are properly correlated into the forms in which nature indicates they should be taken by placing the required combina-

tions around us within easy access. It is precisely so with the taking of mental food. No amount of isolation of the mental food constituents of mathematical study, with a view to reducing to a minimum the energy of the digestive process which we assume to be wasted in the work of eliminating from the system such irrelevant ingredients as are not needed and cannot be assimilated would be of service. The organs of physical digestion as those of mental digestion have this function to perform. To undertake to carry on the processes of physical nutrition by feeding the body on chemically pure elements would be to attempt to reduce the body to a machine, and, were it possible to do this, it would, of course, permanently paralyze nature's agencies of digestion and nutrition. This would be serious, even if it were certain that a sufficient supply of chemically prepared food constituents were always available. And so our attempts to mechanize the mental processes of separation, assimilation, and nutrition in mathematical teaching result in distaste, nausea, and ultimately in the atrophy of the mathematical faculties. When the pupil leaves his teacher and his text-books, he must take the mathematical problems in the form in which nature and the industries set them before him, and, if he is to deal successfully with them, must be able to discern readily the abstract in the concrete, to disengage from confusing material situations the quantitative elements and relations through which the mind must grasp, systematize, and hold them, if it is to understand and use them. After this analysis and generalization—which are the really difficult phases of a mathematical problem, and with which current mathematical teaching concerns itself almost not at all—it is but a simple matter to apply the mathematical tool and to derive the necessary quantitative consequences. This last is now receiving almost exclusive attention in school work.

Laboratory work with real problems, in the formulation and handling of which the pupil habituates himself to the transition from the concrete to the abstract, trains the faculties of analysis and abstraction, teaches him to make his own mathematical problems, to grow his own mathematics, and goes far toward supplementing the too isolated and too abstract teaching of sec-

ondary mathematics of today. If at the other end of the teaching problem much more attention than is customary be given to the concrete interpreting and construing of the results reached in the abstract part of the work, as this work is now being done, the steps from the abstract back to the concrete again may be made much easier to the pupil. This would go far toward restoring the connections of abstract mathematical work with the world of reality, and would deprive of most of its pertinency and force the charge now quite common against secondary mathematics that it is isolated from everything of which practical people have any need or in which they can conceive an interest.

Practical teachers know that the best students of mathematics are neither those who take the subject because it is required nor those who take it because they love it, but that they are those who think they need it and feel that they must have it. From his natural interest in the larger truths of the subject the lover of mathematics is too often ready to pass lightly over the smaller, though very important, truths thus laying a faulty foundation which will cause both him and his teacher much trouble later. The teacher must keep close watch over him to prevent this. On the other hand, the student who feels he must have the subject is always willing to attend to necessary details, "to calk the joints," for fear that the truth he passes slightly over be just the one he may need soon, and with reference to which, if his understanding be imperfect, he may be led a little later into serious consequences. If the social, industrial, and school environment be made to contribute largely to the mathematical work, this third class of mathematical student may be very greatly increased, and students may be led, earlier than at present, to see that to get on well in almost any important line of endeavor, a sound knowledge of mathematics is necessary. With this sort of mathematical work there will be less source for regret than is the case at present, among people who have finished their school work, that they did not give more attention to mathematical study when in school. Another salutary effect of this treatment of mathematics is that the element of truth

contained in the widely prevalent saying, "A mathematical teacher is fit for nothing but to teach mathematics," would be lessened through the requirement that the successful prosecution of such mathematical work in the schoolroom would, perforce, have a socializing influence upon him. In this work the mathematical teacher must learn both how to diagnose and to prescribe for social, economic, industrial, scientific, and for many other needs, besides those of the mathematics class-room. It has already been shown, however, that this difficulty is not serious in practice. The mathematics teacher is as anxious as anyone to have his work appreciated, and is willing to qualify if he is not already fitted for such work.

In the writer's opinion laboratory work in mathematics means also a good equipment of material apparatus. The mathematical equipment of the high school should consist of any, or all, the instruments and appliances of the following list that the school board can be induced to buy. Such as are in the physics laboratory and are available for mathematical uses of course need not be duplicated.

A FAIRLY COMPLETE EQUIPMENT FOR A MATHEMATICAL LABORATORY.

1. Set of drawing instruments, drawing board, T-square, and 30° - and 45° -triangles for each pupil.
2. Supply of India inks and of drawing paper; also individual notebooks supplied with cross-ruled paper.
3. A large and well-lighted recitation room fitted with good drawing desks.
4. Carpenters' tapes, surveyors' tapes, and architects' scales.
5. Three-, five-, and seven-place logarithmic tables. The three-place table of numbers and of trigonometric functions on one side of a small card; the five-place tables of numbers and of trigonometric functions printed on one side of large cards—say $16'' \times 24''$; and the seven-place tables printed on large cards and mounted around a post or column, as is done with large photographs in museums. The pupil should be taught to select from these tables for a given computation the three-, five-, or seven-place table according to the measure of accuracy justified by the unavoidably inaccurate data he is using.
6. Logarithmic slide rules and computing machines.
7. A surveyor's compass, a transit, and level, and leveling rods and flagpoles.
8. A surveyor's plane table and a sextant.

9. Weighing apparatus, as steeleyards, balances, etc.; pendulums, barometers, and thermometers.
10. Force appliances, such as cords, pulleys, etc., and the simple machines.
11. One hundred good texts on arithmetic, algebra, geometry, trigonometry, physics, elementary mechanics, and astronomy; also Crelle's *Multiplication Table*.
12. A dozen treatises on these subjects, and a few good histories of mathematics and of the mathematical sciences.
13. Spherical blackboards, both concave and convex.
14. Three plane blackboards for projective and descriptive work in geometry.
15. Mathematical models.
16. Samples of actual engineering and architectural office drawings of machines and structures displayed continually before the class.
17. Gyroscope taps.
18. A set of Hanstein's models for projective work.
19. Stereopticon and slides.

The apparatus should be used by the classes in mathematics, not so much to find the physical properties of the apparatus themselves, such as contraction or expansion due to changes of temperature, as to furnish measures to be used in the solution and discussion of all kinds of quantitative problems. Not the properties of the tape, but the properties of linear magnitudes, should receive the attention of the mathematical pupil. In the mathematical laboratory it is not so important that the best modern form of the experiment be adhered to as that the mathematical ideas be fully realized by the pupil.

A LESS PRETENTIOUS, BUT VERY USEFUL, MATHEMATICAL EQUIPMENT.

1. Pencils, right-line pen, compasses, ink and paper, drawing board and cheap triangles for each pupil.
2. One set of good drawing instruments for class use.
3. Individual notebooks supplied with cross-ruled paper.
4. Outfit of home-made surveying instruments (see Myers's pamphlet on *Observational and Experimental Astronomy*; the Ravenswood Press.)
5. A Woodworth sextant (Lewis Institute, Electrical Laboratory; price, \$1).
6. Carpenter's fifty-foot tape, and an architect's scale.
7. A dollar logarithmic slide rule; also Crelle's *Multiplication Table*.
8. Three- and five-place logarithmic tables.
9. Home-made models of the most familiar geometrical forms.
10. Twenty good texts, treatises, and histories of algebra, geometry,

trigonometry, elementary mechanics, and astronomy kept in class-room for reference use.

11. Cheap spherical blackboards.
12. A home-made plane table with alidade (see Myers's pamphlet).

Numerous suggestions as to problems and methods of handling them can be obtained from Appendices I, II, and III of the *Annual Report of the Central Association of Science and Mathematics Teachers*. These appendixes contain the report of a committee appointed last December to consider the question of the correlation of mathematics and physics in high-school teaching. The committee consisted of ten members—five representing mathematics and five representing physics—all of whom are experienced teachers who have for some time been correlating the subject-matter of mathematics with the allied subjects, and nearly all of whom have had considerable experience in high-school teaching. The report represents an immense deal of good work and sound pedagogical thought on the teaching of secondary mathematics. The report can be had of the association's treasurer, Mr. E. C. Woodruff, Lake View High School, Chicago. It is worth many times the price (15 cents) asked for it.

No better information as to the way to use the mathematical library under the laboratory plan can be given here than to refer those interested to Mrs. A. K. Hornbrooke's admirable little pamphlet on *The Laboratory Method in the High School*, published by the American Book Co., Chicago (price, 10 cents). No skeptical teacher can read this pamphlet carefully without becoming a convert to this method for high-school mathematics classes. It should be laid aside only by such as do not wish to become converts.

A few words may now be permitted as to the course of study for the mathematical work of the secondary school. Here again it seems desirable to become a little visionary, inasmuch as no sequence of subjects nor distribution of time which is consistent with present high-school programs can accomplish the best results from a mathematical point of view. Granting that the interests and purposes of mathematics in the high school must be subordi-

nated to the interests and purposes of high-school education as a whole, it is still worth while occasionally to study programs from the specific points of view of the individual subjects. This sort of study would be justified if its sole purpose were to find to what extent the requirements of the special subjects are being sacrificed to the good of the whole, and whether the circumstances of the situation call for so full a surrender of the interests of the special subjects. The program proposed here assumes the period of secondary education to begin with the seventh grade of the elementary school, and it follows the work only to the college. The course assumes five hours a week continuously to be given to the mathematical work, and the numbers placed beside the separate subjects are intended only as rough indications of the way these five hours should be proportioned in these particular subjects. The science and hand-work which should be carried along from year to year as a basis for much of the mathematics are also indicated.

PROPOSED COURSE IN SECONDARY MATHEMATICS.

| Subject | Seventh Grade | Eighth Grade | Ninth Grade | Tenth Grade | Eleventh Grade | Twelfth Grade |
|------------------------------|---------------|--------------|-------------|-------------|----------------|---------------|
| Arithmetic | 2 | 1 | 1 | 1 | .. | .. |
| Algebra..... | 1 | 2 | 2 | 2 | 3 | .. |
| Geometry | 2 | 2 | 2 | 2 | 2 | 2 |
| Trigonometry..... | .. | .. | .. | .. | .. | 3 |
| Total..... | 5 | 5 | 5 | 5 | 5 | 5 |
| Nature study | 1 | 2 | .. | .. | .. | .. |
| Elem'try phys. and mechanics | .. | .. | 2 | 2 | 2 | 2 |
| Manual training..... | 1 | 1 | 2 | 2 | 2 | .. |
| Drawing and modeling | 1 | 1 | .. | .. | .. | .. |

The geometry of the seventh and eighth grades should be largely observational, experimental, and constructive work. A little demonstrative work would come in incidentally in the eighth grade. Much of the geometry of the second-year high school (ninth grade) should be geometrical drawing. That of the last year (twelfth grade) would be mainly solid geometry. The work of both the last years would be demonstrative geometry. The manual training of the tenth and eleventh grades should be

pretty largely taken up with the devising and constructing of apparatus for the physical and mathematical laboratories. The seriousness of the customary break in mathematics in the third year of the high school is difficult to overestimate and, the writer fears, is usually underestimated. Connection and continuity are everything in mathematical study, and mathematical power in the pupil can be acquired only through slow, gradual, and uninterrupted growth. Mathematical knowledge and power are emphatically functions of the time. It is confidently believed that the best interests of sound secondary education call for a much wider recognition of these important truths than is customary with supervising officers.

In conclusion it may be said that the laboratory method of teaching mathematics among other things means the correlation of the subject-matter of mathematics and the metrical sciences into an organic unity of truth whose educative value is to be read in the broadening and deepening life of the pupil, and not at all in the perfection of the subject-matter studied. It means that the teachers of mathematics and of science shall get together in planning their work, each taking into cognizance the work of the other, each striving to supplement and reinforce the work of the other. They must recognize, not only that they have the same pupils, but also that the fundamental concern of both should be, not how much mathematics or how much physics, but, rather, "What is it to educate young men and women, and how may I increase my efficiency in the discharge of my duties as a teacher of youth?" These are momentous questions, and to answer them from the standpoint of the mathematical teacher is the supreme mathematical problem of the age.

G. W. MYERS.

THE UNIVERSITY OF CHICAGO,
College of Education.

REPORT OF THE COMMITTEE OF THE AMERICAN
MATHEMATICAL SOCIETY ON DEFINITIONS
OF COLLEGE ENTRANCE REQUIREMENTS IN
MATHEMATICS.

AT the summer meeting of the American Mathematical Society, in September, 1902, a special committee was appointed to prepare standard formulations of college-entrance requirements in mathematics, in co-operation with committees already appointed by the Society for the Promotion of Engineering Education and the National Educational Association. The following report has been prepared by the committee of the Mathematical Society, taking due account, on the one hand, of previous work along similar lines, as represented for example in the mathematical definitions of the College Entrance Examination Board and the Commission of Colleges in New England, and, on the other hand, of existing conditions in the mathematical instruction of colleges and schools.

The membership of the committee represents various forms of higher education only, but advice of value has been sought and obtained from other members of the Mathematical Society and from secondary teachers.

In its selection of topics the committee has aimed to emphasize fundamental matters of principle, and to omit complicated processes and subjects not capable of rigorous treatment in the secondary school.

By the selection of subjects it is not implied that all should be required by any one college, or be taught in any one school.

REPORT.

The committee understands its duties in the following sense:

1. To specify those mathematical subjects which are generally recognized as appropriate requirements for admission to colleges and scientific schools.
2. To specify details under these subjects in such a manner as to represent the standards of the best secondary instruction—

the word "best" being interpreted in a qualitative rather than a quantitative sense.

3. The committee understands also that the consideration of pedagogic questions is not primarily among its duties.¹ It has therefore made no attempt to deal with methods of secondary education in mathematics, or the order of taking up the subjects and their correlation with each other and with other sciences. The order in which the subjects and the topics under them are presented below does not necessarily imply preference of the committee as to order of teaching either the subjects or the topics. It is the opinion of the committee that these are the subjects and the topics which, according to the best present usage, should be offered for admission to colleges and scientific schools.

The formulation is not to be interpreted as exhaustive. It represents rather the extent to which, in the opinion of the committee, definite specification should be undertaken by it; it is expected that further details will be determined in accordance with the judgment of the particular college, school, or teacher.

The definitions proposed are based on present usage and standards. In case of divergence between standard text-books and what seemed a more scientific presentation of the subject in question, the committee has endeavored to make a choice which should not depart so far from current usage as to involve hardship to schools or teachers. The committee is of opinion that no formulation should be considered as having more than temporary validity. No advantages attendant upon uniformity of definition could counterbalance any tendency of the definitions to retard progress of secondary education in mathematics. It is therefore recommended that, if the definitions are approved, they be revised at intervals, perhaps of ten years.

SUBJECTS.

| | |
|------------------------|--------------------|
| 1. Elementary algebra. | 3. Solid geometry. |
| 2. Plane geometry. | 4. Trigonometry. |
| 5. Advanced algebra. | |

¹ Reference may be made to the important work of recently formed societies for the improvement of mathematical teaching.

DEFINITIONS.

1. *Elementary algebra*.—The four fundamental operations for rational algebraic expressions.

Factoring, determination of highest common factor and lowest common multiple by factoring.

Fractions; including complex fractions, ratio and proportion.

Linear equations, both numerical and literal, containing one or more unknown quantities.

Problems depending on linear equations.

Radicals, including the extraction of the square root of polynomials and of numbers.

Exponents, including the fractional and negative.

Quadratic equations, both numerical and literal.

Simple cases of equations with one or more unknown quantities, that can be solved by the methods of linear or quadratic equations.

Problems depending on quadratic equations.

The binomial theorem for positive integral exponents.

The formulas for the n th term and the sum of the terms of arithmetic and geometric progressions, with applications.

It is assumed that pupils will be required throughout the course to solve numerous problems which involve putting questions into equations. Some of these problems should be chosen from mensuration, from physics, and from commercial life. The use of graphical methods and illustrations, particularly in connection with the solution of equations, is also expected.

2. *Plane geometry*.—The usual theorems and constructions of good text-books, including the general properties of plane rectilinear figures; the circle and the measurement of angles; similar polygons; areas; regular polygons and the measurement of the circle.

The solution of numerous original exercises, including loci problems.

Applications to the mensuration of lines and plane surfaces.

3. *Solid geometry*.—The usual theorems and constructions of good text-books, including the relations of planes and lines in space; the properties and measurement of prisms, pyramids, cylinders, and cones; the sphere and the spherical triangle.

The solution of numerous original exercises, including loci problems.

Applications to the mensuration of surfaces and solids.

4. *Trigonometry*.—Definitions and relations of the six trigonometric functions as ratios; circular measurement of angles.

Proofs of principal formulas, in particular for the sine, cosine, and tangent of the sum and the difference of two angles, of the double angle and the half angle, the product expressions for the sum or the difference of two sines or of two cosines, etc.; the transformation of trigonometric expressions by means of these formulas.

Solution of trigonometric equations of a simple character.

Theory and use of logarithms (without the introduction of work involving infinite series).

The solution of right and oblique triangles, and practical applications, including the solution of right spherical triangles.

5. *Advanced algebra*.—Permutations and combinations, limited to simple cases.

Complex numbers, with graphical representation of sums and differences.

Determinants, chiefly of the second, third, and fourth orders, including the use of minors and the solution of linear equations.

Numerical equations of higher degree, and so much of the theory of equations, with graphical methods, as is necessary for their treatment, including Descartes's rule of signs and Horner's method, but not Sturm's functions or multiple roots.

H. W. TYLER, *Chairman*,
Massachusetts Institute of Technology;

T. S. FISKE,
Columbia University;

W. F. OSGOOD,
Harvard University;

ALEXANDER ZIWET,
University of Michigan;

J. W. A. YOUNG,
University of Chicago;

Committee.

REPORT ON COURSES OF STUDY IN ENGLISH FOR PUBLIC SCHOOLS.¹

I. THE PRIMARY AND THE LOWER GRAMMAR GRADES.

IN preparation for the reports that we are about to present, it was necessary to obtain from superintendents of schools and school boards much help in the way of printed directions for the teachers under their supervision. Mr. Horne, therefore, wrote to a great many officials for the needed assistance, which, when able to do so, they very kindly gave. We are glad at this time to acknowledge our indebtedness to them and to thank all who have responded in any way to our request for courses of study in English.

Applications for such courses for elementary schools were met in various ways; sometimes they were granted with the statement that they were not wholly satisfactory; sometimes they were in process of revision; often there were none available.

The following report is based upon the study of seventeen courses in English which came from cities or large towns representing four of the New England states. Three—A, B, and C—gave time schedules for the work in English.

A allows per week:

| Hours | Minutes | Grade |
|-------|---------|---|
| 10 | 40 | I |
| 12 | 10 | II (with 1 hour for geography) |
| 11 | 10 | III (with 2 hours for geography) |
| 11 | 20 | IV, V, VI (with 2 hours for geography, 1 hour for history) |

B allows per week:

| Hours | Minutes | Grade |
|-------|---------|-------|
| 15 | 20 | I |
| 13 | 25 | II |
| 13 | .. | III |
| 9 | .. | IV, V |
| 8 | 30 | VI |

¹Read at the annual meeting of the New England Association of Teachers of English, Boston Latin School, 1903.

In Grades I, II, III English includes elementary science and geography; in IV, V, and VI it includes history.

C allows per week :

| Hours | Minutes | Grade |
|-------|---------|-----------|
| II | 30 | I, II |
| II | .. | III |
| 10 | .. | IV, V, VI |

History does not appear as a separate study until Grade VII. C gives five fifteen-minute periods a week each to writing and spelling till Grade VIII; in VIII, two; in IX, one.

Any of the schedules quoted might satisfy the demands of a good course. Perhaps the best is B, the one that gives 15, 13, and 13 hours, respectively, to grades I, II, and III, even though the average for all the grades is less than that of A; since the large proportion of time given to the primary classes tends to a thorough foundation upon which to build later, and thus brings about a saving of time in the lower grammar grades.

All courses examined provide for oral expression: in the reproduction of stories told by the teacher, of lessons upon all subjects, and of parts of the literature read to the children or read by them; in conversations conducted by the teacher; in original statements of truth discerned by the children through the senses; in the relation of their own experiences. They provide for the correction of mistakes, whether of enunciation, pronunciation, misuse of words, or false syntax. They prescribe, also, written expression, which demands: learning to write (in one instance the "medial" hand is required), to spell, to syllabicate, to use capitals and marks of punctuation, to indicate the beginning of a new paragraph; the learning of many abbreviations is advocated, and also of many contractions. Copying and writing from dictation are generally regarded as important exercises. Lessons are to be reproduced in writing; also stories told or read by the teacher. Letters are to be written, and sometimes themes.

Thirteen of the seventeen courses prescribe grammar, but there is a diversity of opinion as to when work in grammar shall begin. Two say "parse" in the seventh grade (this implies an

earlier study of the subject); one, "formal grammar in the higher grammar grades." One would begin the study in the latter half of the fifth grade; two, in Grade VI; one, in Grade VII. Three advocate the introduction of *The Mother Tongue*, Part I, by Miss Arnold and Professor Kittredge in Grade IV; another delays its use till Grade VII (apparently demanding a mastery of the book in that grade), and orders the beginning of formal grammar in Grade VIII.

With regard to reading matter judgments differ. "Readers" are always recommended for primary grades, generally in fairly good variety. One course that is strong in literature discards "readers" after Grade III; another, after Grade IV; a third, after Grade VII. Miss Cyr's *Readers* are favorites; a few courses are not afraid to include *The Heart of Oak* books edited by Professor Norton. Supplementary reading is usually good, so far as it goes, but often narrow, being too exclusively American. One course, however, mentions Shakespeare for the eighth grade. Another, still bolder, prescribes *A Midsummer Night's Dream* and *As You Like It* for the seventh. In most cases part of the reading is done by the teacher; this is highly commendable, but in one place, where pupils "begin to parse" in Grade VII, the teacher is to read books that the children ought easily to read themselves. In another town, where parsing is in vogue, literature takes less time than so-called language. Several courses require some study of the lives of authors even in primary grades. All courses provide for the learning of poetry, some, however, going so far as to prescribe exactly what poem shall be learned in each grade.

The generous allowance for English in the time schedules quoted is gratifying; moreover, it certainly is wise to regard the beginnings of elementary science, geography, and history as part of the work in English, if for no other reason than that they give occasion for conversation, the natural means by which we learn to speak a language.

Little children come to our schools at five years of age (most of them ought not to come before they are seven) with vocabularies appropriate to their home life; some with very queer

vocabularies, others with very good ones. In most cases no one has taken pains to teach the children; they have learned by imitation. They will continue to learn in the same way; hence the new surroundings of the school, with its ordinary routine, will present ample occasion for development in oral language, if only the teacher, herself worthy of imitation, has the happy gift of inspiring confidence, and wisdom enough not to repress thought and feeling for the sake of form. If thought and feeling become beautiful, some day they will find adequate expression. It is, however, quite necessary not to put stumbling-blocks in the way of the little ones. The teacher serves as her pupils' model during school hours, and is quoted as an infallible authority afterwards; yet in primary grades stereotyped forms of expression known only in the schoolroom are in too constant use. Nowhere else would you hear, "Tell me the story of five birds and three birds," with the hope of getting "Five birds and three birds are eight birds" for the response. "What is *busy work?*" asks the uninitiated. "What do you mean by *gems?*" Plans to secure free, idiomatic English will not avail while the school weekly gives its sanction to such misuse of words.

Again, the school offers models to children in the little books they read; yet how few lessons in "First Readers" are excellent in unity and sentence structure, to say nothing of vivacity! The *Heart of Oak* books, containing the foundations of literature, are not as widely used as they deserve to be, even though there is no better way of learning pronunciation and idiom than through good old nursery rhymes and tales, not twice-told, but told again and again for years, yes for generations. In early stages of the studies of geography and history there comes a time when books of information are read in class. Unfortunately, these books are too seldom written by men of such literary ability as Professor Tarr and the late beloved master, John Fiske. Hence, in planning our courses we must guard with jealous care the periods that belong to literature. No book that may not claim its place among works of art should be read during the reading hour on any pretext whatever.

On the principle made popular by Froebel, "learning by

doing," letter-writing deserves more attention than it receives in many courses. One goes through the tedious process of learning to write, to spell, and to punctuate that he may communicate with some friend beyond the reach of his voice. Here is an honest incentive to careful written work; moreover, the personal element gives life to composition. Partly for this reason we would begin the simplest letters in the last term of even the first year; partly because so many children never go beyond the sixth grade that it is unsafe to delay teaching simple business forms in that grade, and there should be plentiful opportunity for writing letters of friendship before business forms are taught. A large proportion of the work in composition may well be carried on in the form of letters throughout both elementary and grammar courses for training in honest authorship, which training must by all means be thorough from the beginning. To enforce the principle just stated, themes in all grades should be based upon the observation or experience of the writer. A sharp distinction must always be made between a mere reproduction and an original piece of composition.

There appears to be a tendency to teach English grammar but usually of a very rational kind. The diversity of opinion as to when it should be taught seems to indicate the necessity for discussion. No one doubts the educational value of the study of grammar. The questions concerning the matter that one would like to answer wisely are: (1) When is it needful from a practical point of view? (2) When does it become advisable in the development of mind and character? (3) How does it compare with composition and reading in fitting boys and girls for life? The mere getting ready for the high school, and eventually for college, is not to be considered, first, because the many must not be sacrificed to the few; secondly, because (despite the complaints) it is quite fair that the teacher of Latin should have virgin soil. Surely his subject is far easier from the point of view of grammar than is English. Instead, then, of teaching English grammar that Latin may be more readily understood, would it not be wiser to teach Latin, thoroughly so far as it goes, in the sixth or seventh year, as the source of the classical ele-

ment in English, as well as to give some training in the science of language? The knowledge of even a little Latin may become useful in working out the meaning of a large number of commonly used words, literary rather than colloquial, and thus may help to make reading more enjoyable.

We omit formal English grammar from our list of studies, not from any lack of respect for the science of language, but because we feel that it should come later in life, and because the teaching of grammar, necessarily decreasing the amount of time to be given to literature, defrauds the vast majority of the most important part of their training in English.

When Helen Keller was still without language, she was almost unmanageable; with language came the sweetness of spirit which in childhood was her greatest charm. The explanation, I think, is this: an adequate means of expression, and the ability to enter into the life around her, set her soul free. The freeing of the spirit—this always is the high function of language. Says Wordsworth of a sad thought that oppressed him:

A timely utterance gave that thought relief and I again am strong.

But, as in all phases of life the few find freedom in leading, the multitude in following, so it is with language. The few say great things in a great way; the many hear; in each case the spirit may enter into a larger life and find nobler expression. Since we deal with the multitude in our elementary schools, the emphasis of our training in language should be put upon that part of the work which tends to make appreciative followers of great leaders; in other words, upon the reading of good literature. To teach the child of ignorant or illiterate parents to read, and not to give him good taste in literature, is to give that "little knowledge" which "is a dangerous thing."

A good course in English, then, will provide time and opportunity for learning to enjoy good books. To this end, not less than half an hour every day in the week, every week in the year, every year in the course, should be faithfully devoted to reading aloud for pleasure. In the primary and lower grammar grades, the teacher must always do this reading; in the upper grades, the better readers among the pupils may take their part. Pos-

sibly now and then a question may arise, as it will when friends read together some delightful book; but in no respect is the reading to be regarded as a task. There is to be no reproducing of what is read, unless a voluntary one, as when a child has been absent and another tells him what has happened meanwhile in the story.

During this period sometimes it would be well for the children to have books, that they might follow with both ear and eye; at other times it would be better if their hands were employed with some easy work, as sewing, knitting, making hammocks, basket-weaving, or whatever may be done quietly and almost automatically.

A generous list of books must be provided from which the teacher may select what at any time may best meet the needs of her class.

In several of the courses examined, a study of the author's life is prescribed. But little time should be thus spent—only enough to establish the idea that what gives us pleasure has cost abstinence from self-seeking and honest labor, and therefore inspires grateful affection.

Concerning the learning of poetry by heart, a word of caution seems necessary. From the language used in speaking of this work, one is not always quite sure what is to be learned, whether mere scraps of verse or whole poems as artistic unities. If the former, it is worth very little; if the latter, its value cannot be overestimated. In connection with this work, properly conducted, the power of choice should be trained; hence prescribing exactly what shall be taught in each grade is a grave mistake—a mistake so serious as to tend to defeat the end for which the work is done. We must have such teachers as we can trust to introduce the children to such masters as they may follow.

Our courses in English generally are so planned as to devote more time to artificial striving after form than to the presenting of the only sure means by which good form will come. "Reading maketh a full man, writing an exact man." I wonder when the Greeks began to study their language as such. Certainly not before the age of mythology; certainly not before Homer's day.

MARY C. MOORE.

II. THE UPPER GRAMMAR AND THE HIGH-SCHOOL GRADES.

I wish to add my thanks to Miss Moore's for the many responses received in answer to the request for copies of "courses of study." In all over one hundred requests were sent out. From the literature received, many valuable suggestions have come to us.

In considering the grammar and the high-school courses of study, I wish to say, first of all, that I heartily indorse Miss Moore's suggestion and recommendation for the work preparatory to the grammar courses. Undoubtedly all schools cannot send pupils to the grammar grades with the same preparation. But to enter the grammar grade the pupil should be fairly well equipped with vocabulary, and with the elementary principles of sentence structure, of paragraphing, punctuating, and capitalizing.

The grammar courses submitted for consideration all provide for oral expression, written work, grammar study, memorizing selections, and a varying range of reading in literature, "Readers" as such, with few exceptions, seem no longer to be used. I question if many of the books put down by some schools for class study ought not to be put in the list of books to be read outside of the class. *Tanglewood Tales*, *Little Men*, *Little Women*, *Rab and His Friends*, *Through the Looking Glass*, etc., seem to me better adapted for the fireside than for the school. The reading aloud spoken of by Miss Moore for the lower grades should be continued throughout the course. Only in the grammar and high schools the reading can more frequently be done by the pupil. The ability to stand upon one's feet and to read well is an accomplishment all schools should strive hard to teach. Pupils should be encouraged to read aloud at home. In no better way can clear enunciation and pronunciation be effected. Then, too, I wish to emphasize again Miss Moore's statement that in no respect must the reading be regarded as a task, but cultivated as a pleasure. To this end the suggestion that during the reading aloud the hands of the listeners be employed with some easy work, deserves adoption in the higher schools as well as in the lower grades.

In the earlier grades of the grammar school various conclusions are suggested from the circulars received. I quote a few: Constant attention should be given to form. Careless or loose writing must be discouraged. A few clear sentences, well written, punctuated, capitalized, and well paragraphed, are better than many pages carelessly composed or poorly written. Each pupil should be required to look over and correct his work before handing in his paper. No other way of helping develop correct forms of writing is better than dictation. But in this scheme the teacher must prepare carefully the exercise and follow out a general plan for the whole. The parts to be emphasized must be determined. Sentences illustrating the principles can be studied. Then the dictation can follow, and, by comparison, errors in capitalization, punctuation, and paragraphing can be corrected and the general principles easily mastered.

Equally true is the value of letter-writing. As soon as the child can form letters, either print or written, he is advanced enough to take his first lesson in letter-writing. And letter-writing should be carefully kept before the pupil each year, beginning with Grade I and ending only with graduation from the high school.

In the eighth and ninth grades, and in some cases in the seventh, the study of words and sentences with parsing and analysis is taken up. This is commendable, provided not too much importance is placed upon the dry bones of grammar. The very best teachers of the school should be the teachers of English, and they alone can determine whether the study of English be a pleasure or a nightmare. The good teacher in English grammar makes the study pleasant and profitable for the class. The poor teacher wearis himself and does not aid his pupils.

While no absolute rule can be laid down, many schools have found the interests of their classes best served in the seventh grade in emphasizing, with some text-book as a basis of suggestion, the following points: conversation on many subjects ethical and literary, together with current events and current topics; dictation to test all technical work taught; letter-writing; repro-

duction of stories read, also of geography, history, nature work, and literature studies; the principles of narration and description emphasized by written and oral work; committing to memory choice selections, both prose and poetry; the study of words and of sentences. In Grade VIII the same work developed, together with the study of word-building, inflection, synonyms, and antonyms; an outline taught for the development of the subject; business forms and correspondence in connection with the arithmetic. In Grade IX, besides the above, greater discrimination in the choice of material; special attention to the construction of sentences and to analysis; constant practice in narrative and descriptive writing.

I wish here to emphasize the importance of the early study of Latin. The grammar grades ought to take up this work and English grammar taught largely through the medium of the Latin. The study of English grammar as such is often irksome, but under the guise of Latin it is pursued with increased interest. If the study of Latin could be introduced into the seventh grade and treated as a study of grammar, much valuable time would be saved, a deeper interest would be aroused and maintained; the pupil would have a more exact and comprehensive view of English grammar when he entered the high school or academy, and the efficiency of the high-school work in the first year would be greatly increased. For the large number of pupils whose school days end with the grammar school this preliminary training in Latin would be exceptional. But if Latin cannot be studied in the grammar school, the outline of work already presented can be used with profit. Moreover, the teacher of English can emphasize word-building, roots, prefixes, and suffixes, the Latin element in the language, and the simpler constructions of the Latin sentence.

I wish to emphasize the statement that the study of grammar—the different parts of speech, sentence structure, use of capitals, punctuation, etc.—does not belong to the high school. Many of the schools do have this work in the first year of the high school, but I think that it belongs to the grammar grades. But literature and composition have equal importance in the

schedules. As much time should be spent upon these three—grammar, literature, and composition—as the courses of study in the schools will admit. In general, the schools have made liberal time provision for this work. The amount of time varies greatly in the different schools.

The transition from the grammar to the high school ought to be less abrupt than it is. Ordinarily, from the course of study prescribed, it would seem that the high school makes a sudden change. Algebra, a new subject, takes the place of arithmetic; ancient history supersedes United States history and geography. Latin comes in as a new subject. The course in English alone is familiar ground. But the work of the high school should be "shaped by the mere momentum of the lower grades." But this is rarely so. While a few schools teach a little algebra, descriptive geometry, and the beginnings of Latin in the grammar grades, thus making the transition to the high school easy, by far the greater number make the abrupt change. The pupil is not only ushered into a new life, but he takes up work as unfamiliar as his surroundings, and often spends a large part of the first term in finding himself. Consider briefly the Latin which as a language study deserves mention in connection with the English. Seventy-five lessons, nearly all of them emphasizing important principles, have to be mastered so that the pupil can take up the study of Cæsar or other translation at the end of 125, or at the most of 150, days of study. This ought not so to be. If Latin formed part of the study of English in the grammar grades, its study in the high school could be taken up with greater benefit and the course in Latin be completed satisfactorily in four years. So much for the Latin.

The courses in English follow along fairly defined lines in the first nine grades. The same course is required of all. But in the high school and academy the problem becomes more complicated. A few of the pupils are preparing for college. The larger proportion will finish its education in the high school. Is the same course of English study to be required of all? So important is the study of English that I believe that all pupils in the high schools, no matter what courses they are pursuing,

should take the same general work in English. This would be more economical for the schools, and a uniform plan would enable the teachers to develop one course stronger than two parallel courses. If the same work could be required of all, the problem of the courses of study in English would be easier.

The absolute definition of requirements in English is not one I can recommend for those who are to enter college, and certainly is not one for those who are not to go beyond the high school. Not but what every book in the list of requirements is well worth study; but if these books alone are to be studied, other books are better both for those who are to go to college and for those who are not. Some schools have adopted the list of college requirements, with a few slight additions in the first year, skipping English entirely the second year, and spending the last two years wholly upon the college requirements. Some follow the English requirements wholly. Some give a very broad and comprehensive course. Let us glance at the college requirements: three plays of Shakespeare, one for careful study; four of Milton's shorter poems, a careful argument, two critical essays. These books, with *Macbeth*, are for careful study. Then follow some of Addison's *Daily Themes*, three English novels, three poems (two of them very short), and one critical essay. These books are to be read so as to keep "freshly in mind their most important parts."

In this list there is but one short poem by an American writer. These books are excellent in themselves, but I think that our American children, and those we are trying to make American, should have different—or, if not different, at least additional—books to read and study. The trouble is not with the books, but with the small number of books and the way in which they are prescribed. The list is too one-sided. There is too little that is American. True, the lower schools have probably studied more American than English authors, but the fact that a pupil enters the high school does not seem to me to be reason why he should drop American writers. If argument is to be studied, let us have a book that speaks of America by an American. The oratory of Burke could well be supplemented

by that of Webster, Everett, or Choate. If essays and philosophy are needed, let our pupils study Emerson as well as Addison. Why not have novels of Hawthorne, of Poe, or retain one of Cooper's, as well as have only *Silas Marner*, *The Vicar of Wakefield*, and *Ivanhoe*? In other words, let us have in our American schools a goodly proportion of American thought. Is the English better? No matter. The sweet song of *Hiawatha*, the rugged verse of the Quaker poet, the vivid imagination of Poe, the humor of Holmes, the purity of the thoughts of Emerson, are American, and because they are American their study would touch a responsive chord in the hearts of American children. An additional reason why the high-school children who are going to college should study American literature in the public schools: Very little, if any, can be studied at the colleges. Look over the catalogues of the universities and the colleges, and almost no provision is made for the study of American literature. Harvard offers a half course, which is occasionally omitted. In addition, there is a course for graduate study. In Yale, one course meeting one hour a week. In Wellesley, one course one hour a week for a year. Another course touches a little upon America. In Princeton, one course —a senior elective. In Dartmouth, one-half course given in the second semester three times a week. Is not this abundant reason why American literature should be studied in the schools?

The plan for work adapted to the program of the Committee of Ten published in 1897 presents an admirable selection of books to be read in the high schools. This list emphasizes the importance of American authors. Irving, Longfellow, Hawthorne, Professor Norton, Cooper, Dana, Lowell, Dr. Hale, and Emerson are studied together with England's best. Some of the books should be studied carefully, but not too critically; others should be read intelligently in the class, and still others required for home reading.

No absolute list of books should be prescribed for all schools. Each school should have its own comprehensive list. If the school sends graduates to college, let the colleges indicate the scope of the work to be done, but let the schools meet the

requirements as seem best. The college could examine carefully the work done by the school, what books were read, and with what thoroughness the work was carried on. But the schools should have a large freedom in their choice.

Every school in Essex county, particularly those under the shadow of Haverhill or Amesbury, should study the songs of the Quaker poet. We cannot expect the schools of Salem to pass by the works of Hawthorne, or Concord the work of Emerson, or Cambridge the work of Longfellow, Holmes, and Lowell. Marshfield should study the masterpieces of Webster. Nearly every town in New England, certainly every county, has associated with it the names of men who have contributed to our literature, both prose and poetry. America's best is the common heritage of all the schools. Just as in the study of history and geography great stress is placed upon the importance of the study of the town, county, and state in which we live, so in our literature the life and works of local writers should be studied. Not alone should the writers of the past be read in our schools, but the works of those now living, the venerable of today, whose place in literature is already secure. Professor Norton's *Hearts of Oak* and Dr. Hale's *The Man without a Country* deserve a place in every New England school and home. Even though it is doubtless true that many of these books have been read in the lower grades, their study should be a part of the high-school course.

Closely associated with the work in English, and really a part of it, are the courses in classics, modern languages, and history. A purely classical course is extremely rich in its opportunities for perfecting English. The careful reading and study of Virgil and Homer, of Cicero and Xenophon, or of any other great writers, if properly directed by the teacher, will greatly aid in literary study and development. In all schools the study of English should be closely connected with all other subjects, and most particularly so in the allied subjects of languages and history. In the first year the Latin and history give splendid opportunities for English training in reading, writing, spelling, construction, composition, and literature. English grammar, I

have stated, cannot be studied in any better way than through careful training in the Latin grammar. This study enlarges the vocabulary, teaches discrimination in the choice of words. What is true of the study of Latin is almost equally true of the study of Greek, French, and German. Added to this, the increased familiarity with the culture and the civilization of the ancients broadens the mental horizon of our pupils and gives to English study a new importance.

In courses of study where the classics or the modern languages are wholly or partly omitted, additional attention should be given to the study of English literature and composition. Some attention should be paid to the translation of the ancient classics.

Books should never be studied word for word or line for line, as is necessary to do with a foreign tongue. Let me read a sentence from the "Suggestion to Teachers" in the pamphlet on *English in Secondary Schools*:

Pupils should of course be made to understand what they read as they go along; but attention should be fixed, not on unimportant details of substance or of style, but on the significance and spirit of the whole. In studying a tragedy of Shakespeare, for example, far less time should be given to the discussion of details than to the march of events, the play of character, the main lines of the plot, the significance of the whole as a work of genius. Allusions of the broader and more interesting sort found in the works studied —*e. g.*, allusions to classic myths and to historical events—should receive adequate and sympathetic illustration. If any etymological comment is thought desirable, it should be limited to words having a distinct affiliation with the pupil's present knowledge of language, especially of Latin. . . . In every case, a teacher should beware of imparting knowledge in such a way or of such a kind as to kill interest in what his pupils, if left to themselves, would enjoy.

Throughout the high school, then, the English work should be carried along three lines: grammar, literature, and composition. In grammar, we have stated that the aim is for the pupil to gain an intelligent grasp of the English language, with its peculiarities of form and construction. In this the high school finishes off the work of the lower grades. A text-book will not often be needed, but each pupil might well keep a careful notebook.

The aim of literature, we have seen, is to give the pupil a clearer understanding of the author's meaning and a better appreciation of the beauty of his thought and expression. The pupil should see the pictures, hear the music, and feel not alone the quiet happiness and the gentleness of the summer's breezes, but also the sadness and something of the pain that the author sees and hears and feels. A new hope in life comes to the pupils of the schools from the sympathetic study of Lowell's *Vision*. How much they find in nature when they wander with Thoreau! How beautiful the flowers and fields seem when they feel with Bryant and see with the eyes of Wordsworth! How quiet and restful are the scenes of country life seen through Whittier's eyes! What child or man can read *Hiawatha* sympathetically and not glory in its beauty and be impressed with the legends of a mythology wholly our own? Are these only the poets? Patriotism can be felt best by the heart-throbs of Henry, Otis, Everett, and Sumner. How grand our youth think our hard-earned liberty is when the sonorous periods of Webster find a response through well-directed suggestions from a sympathetic teacher! What an impetus to their imagination to read the vivid descriptions of Poe! What lessons taught by the *Scarlet Letter* and the *Marble Faun*! What an inspiration the pupil gets who studies with a lover of Emerson the beauty of his philosophy!

Besides the work in the schoolroom, an interest should be stimulated in outside reading. Often a teacher may help his pupils much by telling them something in advance of the circumstances under which the book was written and its place in literary history. Books suggested for private reading should be in all cases such as will interest the pupils, and besides cultivate their taste and invigorate their minds.

So much for grammar and literature. The third and last division remains to be considered more in detail, viz., composition.

Throughout the seven years in the grammar and high-school courses the pupils should have composition work regularly. Occasional long compositions should be required. The number

and length of these occasional productions might increase as the pupil advances in his course. Individuality in thought and expression should be carefully cultivated. I will not enlarge upon this part of the subject, for I think that the schools in general meet this work well. But to my mind, important as these long occasional compositions are, they are far less beneficial than the frequent short ones. I believe that each pupil in the high school (and I think each pupil in the grammar school) should be required to hand in each day a short composition upon some subject chosen by himself. These compositions, or daily themes, should not be over a page in length, should be upon a single subject, should be written neatly with black ink, and should be handed in regularly. The pupil should be encouraged to express *himself* in these themes. An experience of seven years in my own school with boys between the ages of ten and twenty, and an intimate knowledge of this same plan in a school of boys and girls numbering over one hundred, convince me that daily theme work, properly handled, produces better results than any other method I have tried or have seen others try. Many schools are approaching this work. I confidently believe that the day is not far distant when all the better schools in New England will give courses in daily themes. Our plan of work is briefly: Each pupil deposits his theme in a locked box made for the purpose before a specified hour each day. The themes are read, corrected with red ink, commented upon, suggestions made, and are then handed back to the pupil in batches of five or ten for his examination. Later a personal conference, never exceeding five minutes during which time the instructor runs over the themes, emphasizes his comments, answers questions. The themes are then retained by the teacher.

The themes naturally cover a great variety of subjects. The instructor needs to be a man or woman well equipped; no better equipped, however, than every teacher of English ought to be. Naturally many of the themes are written hurriedly. In general, the pupils take great pride in their themes and endeavor to do their best work. The constant correction of little mistakes teaches more careful expression.

More than all, the teacher of daily themes gets an insight into the very heart of every pupil in a way no other teacher can. If properly encouraged, every pupil shows himself, his personality, his originality. The theme course stimulates observation. Many a time have I heard the remark, when something occurred out of the usual order: "There is my theme for tomorrow!" The mere necessity of writing something original each day makes the pupil mentally alert and greatly develops his powers of observation, which otherwise might lie dormant.

I have found it very beneficial to call my pupils together immediately after the morning exercises, keep them ten minutes, requiring each to write and hand in a theme written on the spur of the moment. Sometimes we assign a general subject or subjects, and sometimes require each pupil to choose his own. Occasionally the theme instructor gives a talk on themes, illustrating his remarks from themes. Each year a talk on the uses of "shall" and "will" does much good.

The course, properly conducted, takes time, although not nearly as much as one would think who has not tried it. Objection may be raised that this course is impossible simply because of the time it takes. I can say merely that there is always time to do that which produces the best results. Further this work is being done each year in an increasing number of schools. I should give up any other course of study in my school more willingly than the course in daily themes.

In conclusion let me sum up. The grammar-school course in English should continue the English work in the lower schools, and the principles of grammar be firmly fixed. Where possible, introduce the study of Latin early in the grammar course. Let the progress be slow, but thorough, emphasizing the fundamental principles of the English language. Much literature should be read both in school and out. A better comprehension of the reading is to be sought, a deeper interest is to be aroused. Constant written work daily should be insisted upon. In addition, occasional long compositions should be required.

The high school should see no sudden change from the grammar. In the high school the principles of grammar, already

learned in the grammar school, should be emphasized and firmly fixed, as much through other tongues as through the English. Many books are to be read, and the pupils trained to see, to feel, and to hear with the author. Far better will it be read several plays of Shakespeare with ordinary care than to expect your pupils to study *Macbeth* critically. Let *Macbeth* be read as *Julius Cæsar* or *The Merchant of Venice* are read—understandingly certainly, but not critically. The latter is college work. Very few men or women outside the college professors of Shakespeare are qualified to teach Shakespeare critically.

I hope that the colleges will greatly increase the requirements in English, but that they will leave each school much latitude in conducting its work and in choosing its literature. Let the field be as broad as may be, and let it include the best of English and American writers. Let each school be encouraged to give its pupils more than a passing knowledge of the local authors and writers, living and dead.

And, finally, let due attention be paid each day to correct expression, both oral and written. Each teacher should be held responsible for the use of good English in his classes, both in the oral and in the written work. All written work submitted by pupils should be regarded as English composition, and incorrect expression should be taken into account in estimating the grade, whether the paper be work in history, arithmetic, or English composition.

The increased attention given to the study of English in grammar, literature, and composition indicates the importance of a most careful consideration of the subject in all its phases.

PERLEY HORNE.

III. A COURSE IN ENGLISH FOR PRIMARY AND LOWER GRAMMAR GRADES.

GENERAL REMARKS.

1. It is taken for granted that teachers will carefully, tactfully, and patiently correct poor enunciation and pronunciation.
2. The idioms prescribed are merely suggestive; the correc-

tion of false syntax will be determined, of course, by the *needs of the pupil*.

3. Spelling should be both oral and written, with syllabication in oral work. A spelling-book is neither denied nor required. At the end of the sixth year children should be able to spell all words of which they have need, and should know how to use a dictionary with ease.

4. In all written work accuracy is to be required—in spelling, punctuation, and in the use of capitals.

5. From Grades I to III, inclusive, all observations recorded and experiences related must have come under the observation of the teacher, to insure training in truthfulness.

6. Always a sharp distinction is to be made between written recitations or reproductions and original compositions.

7. Reading and literature are to take quite half the time assigned to English. One half-hour every day is to be spent in reading for pleasure.

GRADE I.

(Fifteen hours a week.)

Oral exercises.

1. Conversations.
 - a) Connecting home and school.
 - b) Upon the locality and natural surroundings of the school.
 - c) Upon animal and plant life, and minerals.
 - d) Upon matters concerning form, color, number.
 - e) Upon pictures.
 - f) Upon holidays.
2. Reproductions of some stories told by the teacher; explanation of children's illustrations made with brush, crayon, clay.
3. Forms to be mastered during the year.
 - a) Use of *an* and *a*.
 - b) Use of *came, did, saw, have* (affirmative and negative; always in sentences).
 - c) Greeting and farewell.
 - d) "If you please;" "Thank you;" "May I?"

Written exercises.

1. Copying from board or cards: words, sentences, bits of good verse (accuracy required in spelling and punctuation, and in the use of capitals).

2. Child's own name, and "I." Names of parents (Mr., Mrs., Dr.); address of parents (street, avenue; Massachusetts, New York, as needed). Names of the days of the week; names of the months. Dates in April, May, and June.
3. Letter-writing. Suggestions: letters to members of the pupils' families.
 - a) Note of thanks for a gift.
 - b) Invitation to visit school.

(To be correct as to spelling, capitals, punctuation; heading, salutation, close, signature.)

Reading.

1. From the board at first.
 - a) Simple sentences recorded from conversation.
 - b) Sentences leading to "First Book."
2. Several readers, including the *Heart of Oak* books.

Beginnings of literature.

1. Myths told by the teacher, not read.
2. Reading by the teacher.
 - a) Standard fairy-tales.
 - b) Fables.
 - c) Parables.
3. Poetry.
 - a) Read or recited by the teacher.
 - b) Learned by heart by the children.

(Short artistic wholes, not mere snatches of verse.)

GRADE II.

(Thirteen and one-half hours a week.)

Oral exercises.

1. Conversations as in Grade I.
2. Contents of reading lesson, substance of some stories, told or read.
3. Forms to be mastered: *have been, have come, have seen* — (also interrogative and negative); *there is, there are, there was, there were; I am, I am not, I'm not; sit, sat; run, ran; drank, drink.*

| | | | |
|-------------|------------|-------------|-------------------|
| <i>I</i> | | | |
| <i>he</i> | <i>was</i> | <i>we</i> | |
| <i>she</i> | | <i>were</i> | |
| <i>it</i> | | <i>they</i> | |
| <i>took</i> | | <i>took</i> | <i>took</i> |
| <i>gave</i> | <i>me</i> | <i>us</i> | <i>you and me</i> |
| | | <i>gave</i> | <i>gave</i> |

Suggestions: Observe in reading lessons. Correct in speech. Written exercises.

1. Noun plurals in *s*.

2. Copying of fables, proverbs, verse.
3. Uses of capitals.
 - a) Proper names.
 - b) To begin sentences.
 - c) To begin lines of poetry.
 - d) "I," "O."
4. Punctuation.
 - a) Period to close statement, to mark an abbreviation.
 - b) Point of interrogation.
 - c) Commas.

Before and after names of address, in heading and salutation of letters.
5. Dictation of proverbs, fables, verse—for spelling, punctuation, use of capitals, idiom.
6. Letter-writing, letters of thanks, birthday greetings, informal invitations. Abbreviations as needed.

Reading and literature as in Grade I, but somewhat more advanced.

GRADE III.

(Thirteen hours a week.)

Oral exercises.

1. Conversation: as in Grades I and II; also upon important current events, local history, legal holidays.
2. Reproduction.
 - a) Substance of the lesson to be read aloud.
 - b) Recitations in all subjects taught (special attention paid to sentence structure).
3. Forms to be mastered:

| | | | |
|--|--|---|--|
| at home, go | $\left\{ \begin{array}{l} \text{to town} \\ \text{in a carriage} \\ \text{into the house} \end{array} \right.$ | $\left. \begin{array}{l} \text{this} \\ \text{that} \end{array} \right\} \text{kind}$ | $\left. \begin{array}{l} \text{these} \\ \text{those} \end{array} \right\} \text{kinds}$ |
| $\left. \begin{array}{l} \text{he doesn't} \\ \text{they don't} \end{array} \right.$ | | | |
| <i>Shall I? May I?</i> | | | |

Written exercises.

1. Copying.
 - a) Simple conversations for spelling, use of capitals, punctuation (comma and quotation marks), apostrophe in possessive nouns.
 - b) Little poems to be kept.
2. Dictation of simple questions reviewing forms learned in Grades I and II (?).
3. Original answers to questions (.).
4. Noun plurals in *oe*, when vowel changes occur—*e. g., man, men; tooth, teeth.*

5. Exercises for changing sentences in singular to plural —*e. g.*, given, "bird is singing;" required, "some birds are singing."
6. Preterites of common strong verbs (in sentences), as *begin, choose, drink, draw, know*, etc.
7. Letter-writing.
 - a) As before.
 - b) Descriptions of things seen, as a bird, a flower, a toy. Reading. As in grades I and II, with much supplementary reading, all good literature, not books of information.

Literature.

Greek myths leading to Hawthorne's *Wonder Book* and *Tanglewood Tales*. Reading of teacher; prose and poetry. Prose and poetry committed to memory and recited.

GRADE IV.

(Nine hours a week.)

Vocabulary.

Increasing from all lessons.

Elementary study of related terms.—*e. g.*, *walk, march, pace; touch, tap, knock; hark, hear, listen*.

Difference of meaning taught through illustration.

Use of dictionary for pronunciation and meaning.

Oral exercises.

1. Conversations on—
 - a) Local excursions.
 - b) Occupations.
 - c) History.
 - d) Men of note.
 - e) Simple affairs of state, as election in town and state; talks about authors several of whose books the children know, as Hans Andersen, Longfellow.
2. Substance of some stories that are to be read aloud.
3. Forms to be mastered in sentences: *like and love, teach and learn, wish and want, may and can; I shall, you will, he will. Shall I? I should like*. Observe in books read.

Written exercises.

1. Copying from books. Poetry and prose to be kept. Suggestions: wholes, or if not, indicate from what work the passage is taken; author's name.
2. Given, lists of any *English* nouns in singular; required, lists of same nouns in plural.
3. Dictation.
 - a) Simple conversation (fables or short stories).
 - b) Narrative verse.
 - c) Questions concerning use of capitals and ? . ! " " ; .

4. Original answers to questions above.
5. Letter-writing.
 - a) Friendly letters on definite subjects (training for unity, orderly arrangement, indicating paragraphs).
 - b) Informal invitations with replies.
6. Themes based upon observation and experience of the writer. Suggested subjects: "The New Fire Engine," "Our Sleigh Ride," "A Hornet's Nest," "Fido's Tricks."

Reading.

Nothing but permanent literature now and hereafter.

Literature.

1. Reading of teacher.
2. Poetry and prose learned by heart (choice allowed with definite limits).

GRADE V.

Nine hours a week.

Vocabulary.

Continued study of related terms to lead to synonyms. Oral expression.

1. Conversations as in Grade IV.
2. Plans made for topical recitations in geography, history, science.
3. Recitations by topics.
4. Relating incidents in stories read.
5. Forms to be mastered:
A person looks *well, happy, pretty*.
An apple looks *good, ripe, rosy*.
A person feels *well, happy, sad*.
A thing feels *smooth, rough, hard, soft, etc.*
I had rather; I had better; I had as lief.

Written exercises.

1. Plurals of all English nouns.
2. Masculine and feminine of all English nouns.
3. Sentences containing personal pronouns in the predicate—attribute and object.
4. Given, present of strong verbs; required, preterite and *have—, has—*.
5. Given, detached statements of related thought; required, good compound and complex sentences.
6. Dictation.
 - a) Special attention to paragraph and stanza.
 - b) Quotation within quotation.
7. Letter-writing, connected with school work.
 - a) To relatives at a distance.
 - b) To children of other towns.
 - c) To children of other countries.
 - d) Informal invitations.

8. Themes.

- a) Touching geography and history (imaginative work encouraged).
- b) Based upon observation and experience (emphasis upon sentence structure).

Reading and literature.

1. As shown in list.
2. Much poetry by one author—Longfellow, Whittier, Wordsworth, Tennyson, Bryant, Scott.
3. Training of taste; children to choose what they shall learn from the works of author read.

GRADE VI.

(Eight and one-half hours a week.)

Vocabulary.

Pupils may keep a list of new words learned.

Simple study of English roots, prefixes, and suffixes—*e. g.*: given, *kind*; to form; *kindness*, *unkind*, *kindly*, *kindliness*, etc.

Constant use of dictionary for spelling, pronunciation, meaning.

Oral exercises.

1. Conversations on matters of world-wide interest.
2. Reproduction of matter silently read.
3. Recitations by topics (plans worked out in class).
4. Plans for themes worked out in class.

Forms to master:

| | | | |
|------------------|---------------|----------------------|---------------|
| <i>every one</i> | <i>has</i> | <i>United States</i> | <i>{ is</i> |
| <i>each</i> | <i>goes</i> | | |
| <i>any one</i> | <i>wishes</i> | | <i>{ does</i> |

| |
|--------------|
| <i>wants</i> |
|--------------|

"The class presents a picture." "The class dine at Parker's."

Written exercises.

1. Comparative and superlative of given adjectives and adverbs.
2. Masculines and feminines of nouns.
3. Plurals of compound nouns, of letters, of figures.
4. Copying of paragraphs containing—
 - a) Good compound sentences (:).
 - b) General statements followed by particulars (:).
 - c) A break in thought (—).
5. Dictation exercises, to insure correct use of all punctuation marks, capitals, etc.
6. Letter-writing.
 - a) Business forms:

| | |
|----------------|--------------------|
| Address | Heading |
| Salutation (—) | |
| Body | Close Signature |

Superscriptions.

- b) Business letters and replies.
- c) Bills : from grocer, market man, dairy man, furniture dealer, plumber, mason, contractor, dry-goods dealer, music dealer, book-seller, *et al.*
- d) Invitations, informal and formal.
- e) Friendly letters upon one subject.

7. Themes

- a) Based upon observation and experience.
- b) Imaginative themes relating to history and nature.

Reading and literature.

1. Silent reading encouraged.
2. Oral reading (pupils to choose matter within defined limits).
3. Reading of teacher.
4. Poetry and prose (recited and written from memory).

MARY C. MOORE.

IV. SIMPLE GRAMMAR IN GRADES V AND VI.

GRADE V.

Basis of work, some simple story. To be observed :

- I. Paragraphs.
 - 1. In conversation.
 - 2. In description.
 - a) Subject of the paragraph.
 - b) All sentences relate to subject.
- II. Sentences.
 - 1. Classified as to use : declarative, interrogative, imperative, exclamatory.
 - 2. Study of simple sentences.
 - a) Essential parts. Terms: subject, predicate.
 - b) Story told in nouns ; story told in verbs. Terms: noun, verb. Use of personal pronouns.
 - c) Subject modifiers.
 - (1) Single words: that show ownership (possessive nouns and pronouns); that identify (appositives); that describe, limit, or designate (adjectives).

- (2) Groups of words: that show ownership (of), accompaniment (with); that describe or limit.
Study of group.
 - (a) Noun or pronoun.
 - (b) Word that exactly defines relation (preposition).
- d) Predicate modifiers.
 - (1) Single words: that tell *how*, *when*, *where* (called adverbs).
 - (2) Groups of words: that tell *how*, *when*, *where*, *whence*, *whither*, etc.
Study of group.
 - (a) Noun or pronoun.
 - (b) Words that exactly define relation (preposition).

III. Words.

- 1. Nouns.
 - a) Classes: proper, common.
 - b) Number: singular, plural.
- 2. Verbs.
 - a) Self-sufficient predicate: "Birds sing."
 - b) Requiring complements.
 - (1) "William is a *hunter*," "William is *agile*" (attribute).
 - (2) "William shot a *deer* (object).

GRADE VI.

Further study of the sentence, based upon observation of a simple piece of literature.

- I. Very easy compound sentence: members connected by *and*, *but*, or (co-ordinate conjunctions).
- II. Review the work of Grade V.
- III. Predicate modifiers: group of words containing subject and predicate, showing time (*when*), place (*where*), condition (*if*), degree (*as—as*), concession (*although*), comparison (*than*) (connectives called subordinate conjunctions).
- IV. Subject modifiers: group of words containing subject and predicate.
 - 1. To limit.
 - 2. To identify or explain.
Who, whose, whom, which, that (called relative pronouns).
- V. Interjections as they occur.

MARY C. MOORE.

V. A LIST OF BOOKS GRADED FOR ELEMENTARY SCHOOLS.

ABBREVIATIONS.

(Unless otherwise stated, the publishing houses are in Boston.)

| | |
|--|---|
| D. C. H.=D. C. Heath & Co. | Put.=G. P. Putnam's Sons, New York. |
| De W. & F.=De Wolfe, Fiske & Co. | Scrib.=Charles Scribner's Sons, New York. |
| Ginn=Ginn & Co. | S. & M.=Small & Maynard. |
| H. & M.=Houghton, Mifflin & Co. | Am. B.=American Book Co. |
| J. B. L.=J. B. Lippincott Co., Philadelphia. | Cen.=Century Co., New York. |
| L. & S.=Lee & Shepard. | L. B.=Little, Brown & Co. |
| Mac.=Macmillan Co. | |

GRADES III AND IV.

Fifty Famous Stories. Am. B.
Andersen's Fairy Tales. Ginn.
The Wonder Chair and the Tales it Told. Frances Browne. D. C. H.
Seven Little Sisters. Jane Andrews. L. and S.
Each and All. Jane Andrews. L. & S.
Eyes and No Eyes. Edited by M. V. O'Shea. D. C. H.
A Garden of Child's Verse. Robert Louis Stevenson. Scrib.
The Eugene Field Book. Scrib.
Little Daffydowndilly and Other Stories. Hawthorne. H. & M.
Sophie. Madame de Segur. D. C. H.
The Little Lame Prince. Mrs. Craik. D. C. H.
Jackanapes. Juliana Ewing. D. C. H.
The Arabian Nights. Edited by E. E. Hale. Ginn.
Alice in Wonderland. Lewis Carroll. Mac.
Grandfather's Chair. Hawthorne. H. & M.
Adventures of Ulysses. Lamb. H. & M.
The Jungle Book. Rudyard Kipling. Cen.
At the Back of the North Wind. George Macdonald. J. B. L.
Undine. De la Motte Fouqué. D. C. H.
Swiss Family Robinson. Wyss. Ginn.
Marco Polo. Towle's Edition. L. & S.
What Katy Did. Susan Coolidge. R.
Greek Heroes. Kingsley. Ginn.

GRADES V AND VI.

The Wonder Book. Hawthorne. H. & M.
Tanglewood Tales. Hawthorne. H. & M.
The Boys' King Arthur. Edited by Sidney Lanier. Scrib.
True Tales of Birds and Beasts. Edited by David Starr Jordan. D. C. H.
Madam How and Lady Why. Charles Kingsley. Mac.
A Year of Miracle. William C. Gannett. Ellis.
Birds and Bees. John Burroughs. H. & M.
Parables from Nature. Mrs. Gatty. Mac.

Waste Not, Want Not and Other Stories. D. C. H.
The King of the Golden River. Ruskin. D. C. H.
Water Babies. Kingsley. D. C. H.
Ten Boys on the Road from Long Ago to Now. Jane Andrews. L. & S.
Stories of the Old World. Church. Ginn.
Story of the Iliad; Story of the Odyssey. Church. Mac.
Ulysses among the Phaeacians. "Riverside Literature" series, No. 43.
H. & M.
Tales of a Grandfather. Sir Walter Scott. Ginn.
Feats on the Fiord. Harriet Martineau.
The Land of Pluck. Mary Mapes Dodge. Scrib.
Jan of the Mill. Julian Ewing.
The Story of a Short Life. Mrs. Ewing. D. C. H.
The Great Stone Face. Hawthorne. D. C. H.
Tales from Shakespeare. Lamb. Ginn.
The Christmas Carol. Dickens. H. & M.
A Child's Dream of a Star. Dickens.
Hunting of the Deer. Charles Dudley Warner. H. & M.
Story of a Bad Boy. T. B. Aldrich. H. & M.
Wild Animals that I Have Known. Ernest Seton Thompson. Scrib.
Pilgrim's Progress. John Bunyan. Ginn.
Dolph Heyliger. Washington Irving. D. C. H.
Hans Brinker. Mary Mapes Dodge. Scrib.
Heidi. Translated by Louisa Brooks. De W. & F.
Robinson Crusoe. De Foe. D. C. H.
Evangeline. Longfellow. H. & M.

GRADE VII.

Plutarch for Boys and Girls. Put.
The Siege of Leyden. J. L. Motley. D. C. H.
Castle Blair. Flora L. Shaw. D. C. H.
The Crofton Boys. Harriet Martineau. D. C. H.
Being a Boy. Charles Dudley Warner. H. & M.
Two Years before the Mast. Dana. H. & M.
The Cricket on the Hearth. Dickens. Dramatized.
Tales of a Traveller. Irving. Put.
Life of Audubon. John Burroughs. "Beacon Biography." S. & M.
Lays of Ancient Rome. Macaulay. "Riverside Literature" series. H. & M.
The Vision of Sir Launfal. James Russell Lowell. H. & M.
Snowbound. J. G. Whittier. H. & M.
Captains of Industry. Parton. H. & M.
Rab and His Friends. Dr. John Brown. D. C. H.
Little Men. Louisa Alcott. L. B.
Little Women. Louisa Alcott. L. B.

The Man without a Country. E. E. Hale. R.

Franklin's Autobiography. "Riverside Literature" series, Nos. 19 and 20.

H. & M.

A New England Boyhood. E. E. Hale. H. & M.

GRADES VIII AND IX.

Stories from Froissart. Edited by H. Newbolt. Mac.

Passages from the Speeches of Patrick Henry, Benjamin Franklin, Daniel Webster. H. & M.

Brute Neighbors. Henry D. Thoreau. H. & M.

Bob. Sidney Lanier. Scrib.

Life of Agassiz. "Beacon Biography" series. S. & M.

The Sketch Book. Irving. Put.

Treasure Island. R. L. Stevenson. L. B.

Tom Brown at Rugby. Thomas Hughes. H. & M.

Sir Walter Scott: *The Story of Abbotsford.* See Lockhart's *Life* and Sir Walter's *Journal*.

Prue and I. George William Curtis.

The Lady of the Lake. Scott. D. C. H.

The Lay of the Last Minstrel. Scott. D. C. H.

The Building of the Ship. H. W. Longfellow. H. & M.

Sohrab and Rustum. Matthew Arnold. Three poems of knightly adventure.
"Standard Literature" series. University Pub.

Pepacton. John Burroughs. H. & M.

The Courtship of Miles Standish. Longfellow. H. & M.

The Spy. James Fennimore Cooper. H. & M.

The Last of the Mohicans. James Fennimore Cooper. D. C. H.

Life of Grant. Owen Wister. "Beacon Biography" series. S. & M.

Passages from Washington's Farewell Address. H. & M.

Lincoln's Speech at Gettysburg. H. & M.

Under the Old Elm. James Russell Lowell. H. & M.

The Commemoration Ode. James Russell Lowell. H. & M.

Life of Whittier. Richard Burton. "Beacon Biography" series. S. & M.

The Fortunes of Nigel. Sir Walter Scott.

Kensilworth. Sir Walter Scott.

Ivanhoe. Sir Walter Scott.

Our Mutual Friend. Dickens.

A Tale of Two Cities. Dickens.

Shakespeare: *As You Like It; Julius Caesar; The Merchant of Venice;*
Henry V.; A Midsummer Night's Dream; King Lear.

Bacon's *Essays:* "Of Truth," "Of Studies."

Gareth and Lynette. Tennyson. Three poems of knightly adventure.

"Standard Literature" series. University Pub.

Poems of Emerson. Selected by George H. Browne. "Riverside Literature" series. H. & M.

The Solitary. George W. Cable. In "Strong Hearts." Scrib.

BOOKS OF CAREFULLY SELECTED POETRY.

Child Life in Poetry. Whittier. H. & M.

Golden Treasury of the Best Songs and Lyrical Poetry in the English Language. Palgrave. Mac.

The Children's Garland of Verse from the Best Poets. Coventry Patmore. Mac.

Open Sesame. Bellamy and Goodwin. Ginn.

Poems of Places. Longfellow. H. & M.

NOTE.—These works may be read by teacher and pupils in class; by the teacher to her class; by individual pupils at school or at home.

MARY C. MOORE.

EDITORIAL NOTES.

GEORGE HERBERT LOCKE.

IN our November issue a year ago we reviewed the work of the second year of the existence of this interesting educational experiment and predicted that future results would confirm its right to be a part of our national educational life. The report of the past year, which has just been issued, abundantly justifies our prediction. The number of candidates presenting themselves for examination has increased from 1,362 to 1,620, the increase outside of New York being as marked as last year, and even outside of the boundaries of the middle states and Maryland the increase was almost 54 per cent. In these days when the question of shortening the college course is under such sharp discussion, and the ages of our pupils are being investigated that we may devise ways and means of preparing them to enter the world of affairs without undue delay, it is of interest to notice the ages of the candidates who were applying to be considered graduates of our high schools and fit to enter college. The classification is as follows:

| Age—Years. | Number of Candidates. | Age—Years. | Number of Candidates. |
|--------------|-----------------------|----------------|-----------------------|
| Fourteen | 8 | Twenty-nine | 2 |
| Fifteen | 99 | Thirty | 2 |
| Sixteen | 254 | Thirty-one | 2 |
| Seventeen | 449 | Thirty-two | 2 |
| Eighteen | 373 | Thirty-three | 2 |
| Nineteen | 230 | Thirty-four | 1 |
| Twenty | 91 | Thirty-six | 1 |
| Twenty-one | 31 | Thirty-eight | 1 |
| Twenty-two | 18 | Thirty-nine | 1 |
| Twenty-three | 12 | Forty-nine | 1 |
| Twenty-four | 8 | Fifty-three | 1 |
| Twenty-five | 4 | Age not stated | 23 |
| Twenty-six | 2 | Total | 1,620 |
| Twenty-seven | 2 | | |
| Twenty-eight | 0 | | |

We mentioned last year the encouraging fact that those who were sixteen and seventeen years of age exceeded in number those who were eighteen and nineteen. It is gratifying to notice that the increase is still more marked this year, the first class having increased by 128, and the second by 93.

The total number of answer-books (including laboratory notebooks) was 14,812, of which 6,215 were read a second time, inasmuch as they had been rated below 60 per cent., and the rules of the board provide that the interests of the candidate must be well safeguarded against a hasty estimate that might deprive him of his rights.

The most interesting table is, of course, that in which appears a detailed account of the results of the examinations. This is worthy of careful perusal by the teachers in our secondary schools, and ought to be compared, not only with the examination papers, but also with the table we published last year. The examinations on the whole seem to have been easier than last year, or the students must have been better prepared, as 58 per cent. of the ratings assigned were 60 or above, as against 56 per cent. last year, and 59 per cent. in 1901. The following table institutes a comparison between the results of these years:

| Ratings | 1901 | 1902 | 1903 |
|--------------|------|------|------|
| 90-100 | 7.1% | 6.7% | 6.3% |
| 75-89 | 20.2 | 17.8 | 20.0 |
| 60-74 | 32.0 | 31.4 | 31.9 |
| 50-59 | 11.2 | 12.4 | 11.8 |
| 40-49 | 11.7 | 12.4 | 11.1 |
| 0-39 | 17.8 | 19.4 | 18.9 |

It is worthy of note that the results in English are much better this year, and it must be taken into consideration that there were for these two examinations 353 more candidates than last year. In history the results are disappointing, only 53.2 per cent. of the candidates being able to attain a percentage rating 60-100. In Caesar there is a remarkable downfall from the high standard of last year, the 88.2 per cent. having decreased to 61.4; this helped materially to lower the percentage of successful candidates in the Latin section of the examination. Latin composition shows a slight increase, but the results in advanced composition are miserable. In sight translation there is a slight improvement, but it ought to have been even greater, as the examination was not at all difficult. Perhaps the greatest improvement is to be noticed in Greek, where the percentage indicating success increased from 33 to 64.8; grammar, composition, advanced composition, and sight translation show particularly gratifying increases. French held its own, but German made a substantial gain; an interesting indication of the presence of an increasing number of western candidates is that, while in 1902 there were 773 candidates in French and 740 in German, in 1903 there were 962 of the former and 964 of the latter. Spanish is not yet an important factor, there being only 15 candidates; and of botany and geography the same may be said. Elementary mathematics shows a slight decrease, particularly in professions. The results in advanced algebra are better, but one is hardly

| | No. of Candi- dates | Ratings 90-100 | Ratings 75-89 | Ratings 60-74 | Ratings 60-59 | Ratings 40-49 | Ratings 0-39 | Ratings 60-100 | Ratings 50-100 | Ratings 40-100 |
|--|---------------------------|-------------------|------------------|------------------|------------------|------------------|-----------------|-------------------|-------------------|-------------------|
| ENGLISH: | | | | | | | | | | |
| a) Reading | 906 | 3.8 | 36.8 | 34.3 | 6.6 | 9.3 | 9.8 | 74.4 | 81.0 | 80.2 |
| b) Study | 861 | 5.2 | 28.3 | 30.6 | 9.4 | 9.8 | 10.5 | 70.4 | 79.8 | 89.6 |
| | 1,857 | 4.5 | 32.6 | 35.5 | 7.9 | 9.4 | 10.1 | 72.5 | 80.4 | 80.9 |
| HISTORY: | | | | | | | | | | |
| a) Ancient | 172 | 9.3 | 20.4 | 35.5 | 9.9 | 15.1 | 9.9 | 65.1 | 75.0 | 90.1 |
| b) Medieval and modern | 59 | 1.7 | 23.7 | 20.3 | 13.6 | 13.6 | 27.1 | 51.6 | 59.3 | 72.9 |
| c) English | 345 | 1.1 | 12.1 | 38.3 | 22.6 | 12.5 | 13.3 | 51.6 | 74.8 | 86.7 |
| d) American | 408 | 2.9 | 13.0 | 35.3 | 18.6 | 12.0 | 17.1 | 51.2 | 59.9 | 82.8 |
| Greek | 43 | 4.6 | 11.6 | 20.9 | 16.3 | 15.6 | 20.9 | 37.2 | 53.5 | 79.1 |
| Roman | 41 | 4.8 | 9.7 | 30.1 | 7.3 | 9.8 | 12.2 | 53.6 | 61.0 | 87.8 |
| | 1,008 | 3.5 | 14.3 | 25.0 | 17.7 | 14.2 | 15.2 | 53.2 | 70.5 | 84.7 |
| LATIN: | | | | | | | | | | |
| a) i. Grammar | 698 | 7.1 | 7.0 | 19.9 | 18.3 | 21.9 | 31.7 | 88.1 | 46.4 | 68.3 |
| ii. Composition | 706 | 5.2 | 12.0 | 26.1 | 11.2 | 11.1 | 34.4 | 43.3 | 54.5 | 65.5 |
| b) Caesar | 414 | 4.1 | 22.9 | 34.3 | 15.7 | 8.2 | 14.7 | 61.4 | 77.1 | 85.3 |
| c) Cicero | 640 | 2.5 | 26.1 | 45.2 | 12.2 | 0.4 | 7.0 | 73.7 | 80.0 | 92.3 |
| d) Virgil, <i>Aeneid</i> , I-VI | 430 | 5.1 | 29.8 | 32.1 | 7.9 | 11.6 | 13.5 | 67.0 | 74.9 | 86.5 |
| e) Nepos | 19 | 5.2 | 21.1 | 21.1 | ..... | 26.3 | 36.3 | 57.4 | 57.4 | 73.7 |
| f) Sallust | 12 | ..... | 50.0 | 8.3 | 25.0 | 16.7 | ..... | 58.3 | 83.3 | 100.0 |
| g) Ovid | 23 | 4.3 | 30.4 | 39.1 | 4.3 | 13.1 | 8.7 | 73.9 | 78.3 | 91.3 |
| h) Virgil, <i>Ecl.</i> and <i>Georg.</i> | 2 | ..... | 50.0 | 50.0 | ..... | ..... | 100.0 | 100.0 | 100.0 | 100.0 |
| i) Virgil, <i>Aeneid</i> , VII-XII ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| j) Cicero, <i>Am.</i> and <i>Sen.</i> | 1 | ..... | ..... | ..... | 100.0 | ..... | ..... | ..... | 100.0 | 100.0 |
| k) Advanced composition | 399 | 1.5 | 4.8 | 23.6 | 9.8 | 12.8 | 47.6 | 29.8 | 39.6 | 52.4 |
| m) Sight translation | 516 | 6.9 | 14.0 | 25.1 | 12.8 | 10.3 | 31.0 | 46.0 | 58.7 | 69.0 |
| | 3,800 | 3.0 | 16.4 | 20.3 | 12.7 | 12.2 | 25.6 | 49.4 | 62.2 | 74.5 |
| GREEK: | | | | | | | | | | |
| a) i. Grammar | 209 | 5.3 | 22.5 | 33.0 | 4.8 | 10.1 | 24.4 | 60.8 | 65.6 | 75.5 |
| ii. Composition | 202 | 11.4 | 30.7 | 18.3 | 6.4 | 5.4 | 27.7 | 60.4 | 66.8 | 72.4 |
| b) Xenophon | 203 | 5.9 | 35.5 | 34.0 | 6.9 | 3.4 | 14.3 | 75.4 | 82.3 | 85.7 |
| c) Homer, <i>Iliad</i> , I-III | 131 | 3.3 | 34.7 | 37.2 | 6.6 | 4.9 | 13.2 | 75.2 | 81.8 | 86.8 |
| d) Homer, <i>Iliad</i> , VI-VIII | 1 | ..... | 100.0 | ..... | ..... | ..... | 100.0 | 100.0 | 100.0 | 100.0 |
| e) Herodotus ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| f) Advanced composition | 109 | 7.3 | 4.6 | 33.0 | 18.3 | 9.2 | 27.5 | 45.0 | 63.3 | 72.5 |
| g) Sight translation | 161 | 7.4 | 24.8 | 35.4 | 8.1 | 5.6 | 18.6 | 67.7 | 75.8 | 81.4 |
| | 1,000 | 7.0 | 20.7 | 31.1 | 7.8 | 6.4 | 21.0 | 64.8 | 72.6 | 78.9 |
| FRENCH: | | | | | | | | | | |
| a) Elementary | 625 | 1.8 | 30.1 | 37.9 | 14.5 | 11.4 | 14.3 | 59.8 | 74.3 | 85.7 |
| b) Intermediate | 279 | 4.4 | 6.9 | 29.0 | 14.1 | 18.1 | 31.5 | 36.2 | 50.4 | 68.5 |
| c) Advanced | 58 | ..... | 12.3 | 22.8 | 10.5 | 54.4 | 12.3 | 45.0 | 45.6 | ..... |
| | 602 | 1.3 | 15.0 | 33.8 | 14.0 | 13.3 | 21.7 | 30.2 | 65.0 | 78.3 |
| GERMAN: | | | | | | | | | | |
| a) Elementary | 632 | 8.1 | 27.1 | 33.2 | 10.4 | 7.9 | 13.3 | 68.4 | 78.8 | 86.7 |
| b) Intermediate | 266 | 3.4 | 21.4 | 43.6 | 12.0 | 7.5 | 12.0 | 68.4 | 80.5 | 88.0 |
| c) Advanced | 66 | 10.6 | 22.7 | 30.3 | 6.1 | 10.6 | 19.7 | 63.6 | 69.7 | 80.3 |
| | 604 | 6.9 | 25.2 | 35.9 | 10.6 | 8.0 | 13.4 | 68.1 | 78.6 | 80.6 |
| SPANISH..... | 15 | 6.7 | 13.3 | 40.0 | 6.7 | 13.3 | 20.0 | 60.0 | 66.7 | 80.0 |
| MATHEMATICS: | | | | | | | | | | |
| a) Elementary: | | | | | | | | | | |
| i. To quadratics | 973 | 30.1 | 17.4 | 31.2 | 11.1 | 10.7 | 9.5 | 68.8 | 79.9 | 90.6 |
| ii. Quadratics, etc | 887 | 7.9 | 14.1 | 26.2 | 13.0 | 13.4 | 25.5 | 48.1 | 61.1 | 74.5 |
| iii. Progressions, etc | 401 | 4.5 | 12.0 | 17.7 | 12.5 | 11.5 | 41.9 | 34.2 | 46.6 | 58.1 |
| b) Advanced algebra: | | | | | | | | | | |
| i. Series | 63 | 1.6 | 6.3 | 27.0 | 6.3 | 19.0 | 39.7 | 35.0 | 41.3 | 60.4 |
| ii. Theory of equations | 44 | 4.6 | 9.1 | 18.2 | 4.6 | 9.1 | 54.5 | 31.8 | 36.4 | 45.5 |
| c) Plane geometry | 927 | 11.3 | 22.5 | 31.7 | 10.9 | 11.2 | 12.3 | 65.6 | 76.5 | 87.7 |
| d) Solid geometry | 291 | 19.0 | 23.0 | 30.3 | 6.5 | 8.6 | 12.7 | 72.2 | 78.7 | 87.3 |
| e) Trigonometry: | | | | | | | | | | |
| i. Plane | 223 | 5.4 | 14.4 | 30.0 | 18.4 | 15.3 | 16.6 | 49.8 | 68.2 | 83.4 |
| ii. Spherical | 51 | 5.9 | 17.7 | 29.4 | 13.7 | 5.9 | 27.4 | 53.0 | 66.7 | 72.6 |
| | 3,800 | 12.0 | 17.3 | 28.4 | 11.6 | 11.7 | 10.1 | 57.6 | 69.3 | 81.0 |
| PHYSICS..... | 273 | 4.0 | 22.3 | 44.7 | 11.4 | 10.6 | 7.0 | 71.1 | 82.4 | 93.0 |
| CHEMISTRY | 219 | 3.6 | 25.1 | 35.2 | 17.4 | 13.2 | 4.1 | 63.9 | 82.6 | 95.9 |
| BOTANY | 8 | ..... | 12.5 | 50.0 | 25.0 | ..... | 12.5 | 62.5 | 87.5 | 87.5 |
| GEOGRAPHY | 16 | 6.2 | 25.0 | 43.7 | 18.7 | ..... | 6.2 | 75.0 | 93.7 | 93.7 |
| DRAWING | 155 | 3.2 | 9.7 | 56.8 | 5.2 | 5.2 | 20.0 | 69.7 | 74.8 | 80.0 |
| | 14,203 | 6.3 | 20.0 | 37.9 | 11.8 | 11.1 | 18.0 | 58.2 | 70.0 | 81.1 |

prepared for the very large increase in solid geometry; 19 per cent. of the candidates in this much-dreaded subject attained a rating of 90-100, the best showing of any subject in the whole list, while last year only 3.2 per cent. were in this honor list. Physics shows a substantial increase, while chemistry and drawing fall behind.

It is perhaps well to repeat what we said last year in reference to this Examination Board, as even yet there are many who misunderstand its relationship to the colleges. It acts as an independent appraiser, fixes the value after a careful examination, and communicates the value to the candidate who presents the certificate of value at his college port of entry. There the responsibility of the board ends, and the college concerned may deal with the individual as it sees fit in accordance with its own standards. This independence of the board constitutes its great strength and insures its permanence. During the past year the membership of the board has been enlarged by the admission of the Case School of Applied Sciences of Cleveland, Ohio, and Adelphi College of Brooklyn, N. Y. The Massachusetts School of Technology held no examinations this year outside of Boston, but accepted the examinations of this board. Adelphi, Colgate, Mount Holyoke, and Wellesley withdrew their separate examinations, thus swelling to ten the number of colleges which have entered into complete affiliation with the board.

IN a catalogue of educational plants and flowers this certainly would be classed among the "hardy perennials." It is one of our oldest friends, and an educational convention without it would seem like a discrimination against the elderly. The longevity and apparent youthful freshness of this subject may be accounted for by the fact that rarely do two speakers on this subject agree upon what the subject really means. In the first place, they disagree upon the definition of the term "college education," and, in the second place, the significance of the word "pay" seems very hard to determine. With these disadvantages one cannot wonder that the results of a discussion of the general subject have been great in extent, but very meager and unsatisfactory in value. This, however, is not a peculiarity attaching to this subject; it is the most noticeable characteristic of an educational convention, and indicates a looseness in thinking and a lack of powers of organization which might well be used as an argument to prove the negative side of the question now under discussion.

DOES A COLLEGE EDUCATION PAY?

In a former issue we quoted the homely but telling illustration used by John Graham of the Stock Yards to prove the utility of a college education, and we still believe that his philosophy was sound. It was the statement of a hard-headed business man, too few of whom have favored education with real criticism. There has lately appeared the second edition of a work which differs widely from this in form and yet is upon much the same subject. Mr. R. T. Crane, a prominent manufacturer of Chicago, was convinced that a

college education was of but little value to a boy who intended to enter upon the commercial life, and seemingly to prove that his convictions were correct he instituted an inquiry among educators and business men. These opinions, supplemented by comments upon these and upon the general question, he has gathered into book form under the formidable title "The Utility of an ACADEMIC or CLASSICAL EDUCATION for Young Men who have to Earn their Own Living and who Expect to Pursue a COMMERCIAL LIFE." As might be expected, Herbert Spencer is called to the aid of the critic, and the unwary reader might think, from the general form of quotation, that the criticism made many, many years ago by the great philosopher had just been obtained by the author. The first part of the book deals with the answers which the investigator received from some thirteen American college presidents. The questions asked were:

1. Is there, in your opinion, any evidence that such education is of any advantage to this class of young men?
2. If so, what evidence?
3. Have you made any systematic effort to ascertain—
 - a) What success such college graduates have met in securing positions?
 - b) How successful they have been after going into business?
4. If question No. 3 is answered affirmatively what have you found to be the facts?
5. Can you mention any employers who, when seeking employees, are in the habit of asking, from the head of any college, information regarding students about to graduate, with the view of selecting their help from among such students?
6. Please give an estimate of how much it costs your college to give a young man such a course of education. I do not mean by this simply the student's tuition, but you should also include interest on the plant, taxes, insurance, wear and tear, in fact everything that enters into the actual cost of running the college.
7. Can you give me the names and addresses of the secretaries of classes that were graduated from your college five to eight years ago? I may wish to obtain from them a list of their class mates, in order to make some inquiries of such young men, should the information received from the heads of the colleges be unsatisfactory.

With these questions an explanatory letter was sent in which Mr. Crane stated that, as the question of the utility of an academic course for young men who have to make their own living and who expect to pursue a commercial life, is one of the greatest importance and one in which he was making an investigation, he asked for co-operation to the extent of answering the above questions.

We have quoted in full the questions sent to the college presidents so that our readers might be the better able to judge of what results might be hoped for from such an attempt at investigation by a business man who prides himself on business methods. The definition of the term "academic" at once caused trouble, all of which Mr. Crane blandly explained away as mistakes on the part of the presidents. He wonders why the president of Harvard understands an academic course to comprehend any course of study

in a college or scientific school which covers approximately the years from seventeen or eighteen to twenty or twenty-two. He would no doubt like that term restricted to Latin and Greek, with possibly a little mathematics, for then his task would be made much easier. As might be expected, the results are very unsatisfactory. The most interesting result of the letter sent to college graduates asking them what advantage their college education had been to them is that Mr. Crane reveals his idea of success in life. The successful man is the rich man, and this revelation destroys much of interest in the investigation.

The next point of attack was the business man, and to one hundred of these was sent a letter asking if there were college men in their employ; what proportion were these of the whole; is preference given to college men when help is being selected; what advantages, if any, do they seem to possess, etc. It is impossible to quote the whole list of questions, but there is one that deserves a place so that Mr. Crane's attitude may be seen:

If you favor those who have had a college education, then take the case of two young men of equal age and mental caliber, one of whom (having had simply a grammar-school education) starts in business and the other goes to college. At the time the latter leaves college (assuming that the other were then worth \$1,200 a year to you), if it were possible to make a twenty-year contract with each of these young men for his services, how much more would you be willing to pay the college man for the twenty years? (It should be remembered that the first young man has had about six years' experience in the business at the time the latter leaves college.)

When an employer wrote that he had no college men in his employ, and that he did not believe in them, there seemed to be a special welcome for him; when a man said he had an immense wholesale trade, employing all grades of men, only 5 per cent. of college men, but that he believed in employing them, he was taunted with inconsistency.

We hope that many of our readers will get this little book and peruse it thoroughly. It is supposed to be a message from a representative of the business men to the persons engaged in educational work. It illustrates what a business man thinks is the ideal in life and how the boy who goes through college is handicapped in the race. We ought to be justified in the assumption that the book may be taken as a fair sample of the logic and common-sense of a very successful business man. The kindest criticism of the book is to say that if it were written by a man of college training it would be an additional proof of the inadequacy of that training for success.

PERHAPS the most notable educational event of this year was the great gathering in Chicago in February last to discuss the relationship which exists between religion and education, and to devise ways and means for developing that relationship and making religious work more educationally effective as well as making educational work more religiously effective. The inception of the movement was due to the Council of Seventy—an organization, some eight years old, com-

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posed of biblical teachers in the leading educational institutions throughout the country. A circular letter was sent out in which the opinions of men engaged in religious and educational work were asked as to whether a movement along this co-operative line would be wise and timely. The answers showed a remarkable unanimity of opinion and an eagerness for a general meeting for organization. The preliminary steps for such a convention were attended to by the Council of Seventy, and in February there assembled in Chicago one of the most enthusiastic conventions the city has known. The arrangements were excellent, the program was well selected, and the business details were carried out without any misunderstandings. There could be no mistake about the feeling of the convention; it was for permanent organization. This feeling did not spend itself in mere emotional utterances, but the interest taken in the permanent organization of the association clearly showed that there was a great need felt by those engaged in the work of church and school. Following the example of the National Educational Association, the work has been divided into departments. Of these there are seventeen: the Council, Universities and Colleges, Theological Seminaries, Churches and Pastors, Sunday Schools, Secondary Public Schools, Elementary Public Schools, Private Schools, Teacher Training, Christian Associations, Young People's Societies, the Home, Libraries, the Press, Correspondence Instruction, Summer Assemblies, Religious Art, and Music. These departments have been fully organized, and the officers of each has been assigned the task of preparing a program for the next meeting of the association, which will be held in Philadelphia during the month of March. Our readers are no doubt specially interested in the Department of Secondary Schools, and they will be glad to learn that the program has been arranged, and that the subjects to be discussed will be specially interesting to those engaged in the work of secondary public schools.

The proceedings of the first convention have been printed and make a very interesting volume of over four hundred pages. It may be obtained from the secretary, Mr. W. N. Stearns, 153-155 La Salle street, Chicago.

BOOK REVIEWS.

SOME RECENT SPANISH TEXTS.

Galdós' Marianela. Edited, with Introduction, Notes, and Vocabulary, by J. GEDDES, JR., AND F. M. JOSSELYN. D. C. Heath & Co. Pp. i-xvi, 1-198 (text), 199-265 (notes and vocabulary).

Galdós' Marianela. Edited, with Introduction, Notes, and Vocabulary, by EDWARD GRAY. American Book Co. Pp. 1-200 (text and footnotes), 202-264 (vocabulary).

Galdós' Marianela. Edited, with Introduction and Notes, by L. A. LOISEAUX. W. R. Jenkins. Pp. i-viii, 1-261 (text), 263-283 (notes).

We welcome the appearance of this well-known creation of the eminent Spanish novelist, whose high reputation in modern letters, together with the huge bulk and great variety of his literary output, well warrants an addition to our available specimens of his work for class use. In compensation for our expectancy we have three different editions cast upon us at the same time. This is a wealth of service for which we ought to be grateful. But we should feel so with perhaps better grace if we could rid ourselves of the suspicion that the present editorial trilogy, so to speak, of one and the same work might serve as a striking example of the defects, and above all the wastefulness, of competition, without any corresponding redeeming virtues that we can discover. That the actual demand for the text in question is perhaps able to support one edition well, is a business consideration that may well be left to the publishers themselves for solution. But the critic may with propriety deprecate the tendency of publication houses to unnecessary duplication and reduplication of a given language text. The process would be commendable indeed if each succeeding reprint stood for an advance over its predecessors in realizing the desiderata of editorial workmanship. Unfortunately this is not always the case; and we have examples of texts whose genealogical tree branches out to the third or fourth generation, but where there is not enough improvement of breed to do credit to the imposing pedigree. Indeed, we have examples where the later victim of the printer's ink is distinctly inferior to his predecessor of the same title. Thus in books as in families history is apt to repeat itself. But we are taught, as a cardinal article of our economic creed, to pin so much faith to the theory of the benefits arising from unlimited domestic competition that it might seem ungenerous to carp at the wealth of choice displayed before us in the present volumes, even though a careful and impartial examination force us to the conclusion that in point of editorial workmanship and student usefulness they are not all of equal merit and desirability.

The theme of the book is a touching story of the waif, Marianela, ill-favored in personal charms, but of matchless heart, who fixes all her wealth of affection and

devotion upon her rich young patron, blind but handsome and idealistic. In her service to him as his boyhood companion and guide, she nurtures sentiments destined to crushing disillusion when he unexpectedly recovers his sight. For the defects of Marianela's early education amid the pitiless material surroundings of an industrial community deprive her of intellectual resources for rising above her disappointment. Into this framework the author has cast many of his well-known characteristics, especially his fondness for discussing the social and economic problems of the day. From the nature and treatment of the theme the novel is both realistic and idealistic, and is well adapted to serve as a good specimen of the author's salient literary traits. To this end the text should be given entire, particularly since it forms a literary unity well within the limits of our language publications. We have the full text in the first two editions above; the third is somewhat shortened by the omission of passages here and there, although we think that even these are essential for a full understanding of the author's characteristics.

The Heath edition is quite satisfactory. The introduction is very good, giving the reader a compendious but sufficient account of the author's work, the extraordinary voluminousness of which is succinctly and clearly analyzed. The notes answer their purpose. But we question the need or desirability of a special vocabulary in a book of this kind designed for learners beyond the elementary stages. The preparation of such implies much hack-work not safely to be intrusted to a poor hand and without intellectual compensation to the good one. But this again is a consideration outside of our province. Yet we note with some surprise the persistency with which, as apparently a settled policy, certain houses invariably inflict special vocabularies with all of their language texts, quite regardless of any consideration of fitness arising from the nature of the text and the grade of learners for which it is adapted. Even with those houses disposed to exercise discretion, the force of competition seems to make the tendency irresistible.

The edition of the American Book Co. has considerable annotation in which the editor shows a praiseworthy attention to details. The brief introduction is of no value in respect to any light it throws upon the author or his work. Grammatical references to several leading works are plentiful, and difficulties or peculiarities of expression are generally noted. There are some omissions, and errors are not infrequent. But the criticism that is severely condemnatory of the value of the book is the fact that the text is based on an older reading instead of that of the latest or ninth edition (Madrid, 1899), doubtless accessible at the time of the editor's preparation of the text. The circumstance is not trifling, inasmuch as this last edition underwent an extensive revision which represents hundreds of changes in the preceding editions. These changes stand for improvements of style and precision of expression, or a distinct modification of the thought, or even the correction of grammatical errors. One will see, then, that the difference is of sufficient gravity to impair seriously the value of the book, if according to current standards we are justified in assuming that a writer's last edition is a final and authoritative expression of his thought, and, presumably, the desirable one to follow.

The Jenkins edition stands as No. 2 in his series of *Novelas Escogidas*. It is a notable improvement upon its predecessor, Alarcón's *El Final de Norma*, the wild and absurdly impossible romanticism of which is not favorably adapted to giving the inexperienced reader a favorable impression of the level of Spanish letters in general or of the eminent author in particular, who through this novel is represented by one of the

least worthy of his productions. If we allow ourselves the privilege of indulging in this brief digression, it is to seize the opportunity for expressing our satisfaction with the improved standard of choice displayed by the present work, and our hope that it may be kept as high in the future in the publications of the series; for this offers an excellent opportunity to present to the American Spanish-reading public choice selections, properly revised and edited, of a department of literature in which Spain is particularly strong. The present edition can appropriately make some claims to favor with those to whom its special features appeal. The introduction is brief, but sufficient for the purpose. We have already commented upon the shortened edition. We have only to add that it seems a pity to mutilate an original for utilitarian purposes, unless this original is clearly beyond reasonable limits, and the question is one of either submitting to a reduced form or none at all; or unless a house publishes a text avowedly as merely an extract from the original, as has often happened with us. In our present edition the type is large and the lines wide apart, with the result that the volume is bulkier than either of the two first mentioned, albeit containing a smaller amount of matter. The annotation has the anæmic quality characterizing most of the Romance texts of the house to which it belongs, although perhaps it will commend itself to many as quite sufficient.

Galdós' Electra. Edited, with Introduction, Notes, and Vocabulary, by O. G. BUNNELL. American Book Co. Pp. 1-140 (text), 142-85 (vocabulary).

GALDÓS is far better known as a novelist than as a playwright, and there is not much risk in holding that his reputation will endure in the first capacity. The stage ill adapts itself to the ventilation of social or political problems, and given the author's characteristic traits—indeed, those which have won for him immense reforming influence—we can scarcely suppose his drama to be free of them. He has written ten plays which have created some stir, partly through the eminent literary rank and reputation of the author, partly through favoring circumstances of contemporary political events. *Electra*, one of his latest, is deemed by good judges to be the best and most notable. But we hardly think it of a class in which the fundamental principles of dramatic art are conciliated, or that it will long survive when the conditions of social unrest to which it owes its inspiration have passed away. The theme is the conflict between religious tolerance and bigotry, illustrated by the experience of the heroine, Electra. She is agitated by warring influences springing from her disquieting origin, and drawing her now toward the spiritual joys of the convent, now toward the more material ones of domestic life. She has no visible qualifications for the former vocation, to which undiscriminating bigotry and selfishness would sacrifice her; but she is admirably fitted for the latter, which, after the customary vicissitudes, she succeeds in realizing. The author's sympathies are not in doubt, although as a Spaniard and a good Catholic he treats his opponents with exemplary tact and moderation.

The work is well worth publication as a reflection of modern social conditions in Spain, and may be read with profit toward the close of the first year of study. But we wish that the present edition could have been better made up. The introduction is unsatisfactory. There is no annotation worth speaking of, and the vocabulary abounds in errors and omissions. A table of these would make a long list.

R. E. BASSETT.

THE UNIVERSITY OF KANSAS.

The Teaching of English. By G. R. CARPENTER, F. T. BAKER, AND FRED. N. SCOTT. Pp. viii + 380. New York: Longmans, Green & Co.

WE may look hopefully into the future if every such book is as helpful as the recent contribution to the American Teachers Series, *The Teaching of English in the Elementary and the Secondary School*, by Professors Carpenter and Baker, of Columbia University, and Professor Scott, of the University of Michigan. The material of this book, founded on sound principles, deals with a problem which is at present far from solution. So comprehensive is the treatment and so fair the conclusions, that the reader feels that certain matters are really settled. The purpose of each of the collaborators evidently has been to weigh all arguments on every proposition, to show clearly what has been done, and to state what may be considered as definitely determined. Therefore, the book is not only theoretical, but extremely practical.

The first chapter, on "The Study of the Mother-Tongue," by Professor Carpenter, shows the history of instruction in the vernaculars in Europe and in the United States, and lays strong emphasis on English teaching in this country. The second chapter, on English in Elementary education, by Professor Baker, gives much interesting material on the beginnings of reading in the early primers, the beginnings of composition teaching, and concludes with many practical suggestions on the teaching of grammar, literature, and composition in the elementary department. The same plan is followed in a no less interesting manner by Professors Carpenter and Baker in chapter iii, on "English in Secondary Education," considering in detail language, literature, college entrance requirements in English. The chapters by Professor Scott deal with "The Training of the Teacher" and "Essay Correcting."

Many students will consider as not the least valuable part of the book, the thirty pages of bibliography on all phases of English work, with perhaps five hundred references carefully arranged.

There are few subjects about which there are more different opinions than the teaching of English. So no one will probably agree with all the suggestions of this volume; e. g., the introduction of Anglo-Saxon into the high schools, etc.; yet the ideas in the main seem so sane and practical, the treatment so exhaustive, the subject so timely, that we have no hesitation in saying that every teacher of English should have access to this volume.

WILL D. HOWE,

BUTLER COLLEGE,
Indianapolis Ind.

Wordsworth's Shorter Poems, Edited with Introduction and Notes, by EDWARD FULTON. New York: the Macmillan Co. Pp. 256. Price 25 cents.

IN this latest number of the "Pocket Classics" the introduction, consisting of about seventy-five pages, includes a sketch of the life of Wordsworth and sections on the influence of his precursors, his theory of poetry, the shorter poems and his philosophy of life. In classifying the poems included in this book the editor has wisely abandoned Wordsworth's fanciful and thoroughly unsatisfactory division, and has grouped the poems selected under four heads: (1) "Lyrical Poems;" (2) "Poems of Description and Reflection;" (3) "Narrative Poems;" (4) "Sonnets." The list of poems selected is a sane one and includes nearly all the admirer of Wordsworth is

glad to see in such a collection, and none that he would have omitted as unworthy of the poet whose work was so profuse and so uneven. One cannot help wishing that some portions of the "Prelude" had been included, even at the sacrifice of the exactness of the title of the book and at the expense of some of the poems included. The omission of the "White Doe of Rylstone," the only poem in which he (Wordsworth) is thoroughly romantic, as the editor truly says, while perhaps necessary, is to be regretted.

The careful, scholarly introduction, with its wealth of footnotes, shows a thorough preparation on the part of the editor, a preparation we find wanting in many of our school editions, and atones in part by its charming style for the infringement upon space which should have been devoted to the poems. The editor has a crisp way of restating things familiar regarding the life of the author and of adding just those less known facts that give to the biography a pleasing freshness. The summaries of Wordsworth's attitude toward nature and of his views on education are admirable.

H. G. PAUL.

THE UNIVERSITY OF ILLINOIS.

BOOKS RECEIVED.

[The notice here given does not preclude the publishing of a comprehensive review of any of these books.]

Hero Stories from American History. By Albert F. Blaisdell and Francis K. Ball. Pp. 255. Boston: Ginn & Co.

This book is intended to be used as a supplementary historical reader for the sixth and seventh grades of our public schools.

Beginnings of Rhetoric and Composition. By Adams Sherman Hill. 12mo, pp. 522. Price, \$1.25. Cincinnati: American Book Co.

The aim of this book is to teach young writers to express themselves correctly, not by dry mechanical devices, but by stimulating them to put their natural selves into their compositions.

Some Useful Animals. By John Monteith. 12mo, pp. 232. Price, 50 cents. Cincinnati: American Book Co.

The subjects treated in this book are intended to assist in nature-study and give aid in learning to read.

Selections from Latin Prose Authors for Sight Reading. By Susan Braley Franklin and Ella Katherine Greene. 12mo, pp. 80. Price, 60 cents. Cincinnati: American Book Co.

The material in this book is suitable for students in the last year of a college preparatory course or in the freshman year in college.

The Story of the Philippines. By Adeline Knapp. Pp. 295. Price, 60 cents. Boston: Silver, Burdett & Co.

This is a story at first hand, the material being gathered on the spot and not from a cyclopedia. It is arranged for use in the schools of this country, so that the boys and girls may have a clearer idea of our new possessions.

Colomba. Edited by Albert Schinz. 16mo, pp. xviii + 226. Price, 40 cents. Boston: Ginn & Co.

Daudet's La Belle Invernaise. Edited by Frank W. Freeborn. 12mo. Pp. 68. Price, 25 cents. Boston: Ginn & Co.

Greek Composition for Schools. By Robert J. Bonner. Pp. vi + 248. Chicago: Scott, Foresman & Co.

Practical Grammar. By W. C. Sayrs. Pp. vi + 361. Price, 60 cents. Boston: Lathrop Publishing Co.

Schilling's Spanish Grammar. Translated and edited by Frederick Zagel. Pp. vi + 340. Price, \$1.10. New York: Henry Holt & Co.

Reviewed in September issue.

Lessing's Nathan der Weise. By Tobias J. C. Dickhoff. Pp. 368. Price, 80 cents. Chicago: American Book Co.

This is prepared for mature students.

Elements of Physics. By Ernest J. Andrews and H. N. Howland. Pp. 430. Price, \$1.10. New York: The Macmillan Co.

The authors state that they have sought to make prominent the practical bearings of physics with special reference to the needs of the students whose schooling ends with graduation from the high school.

Heredity and Social Progress. By Simon N. Patten. Pp. 214. Price, \$1.25. New York: The Macmillan Co.

Reserved for review.

The Beginner's Latin Grammar and Exercises. By Percy H. Frost. Pp. 291. New York: Longmans, Green & Co.

Elements of Plane and Spherical Trigonometry. By Thomas U. Taylor and Charles Puryear. Pp. 160 + 67. Boston: Ginn & Co.

The authors have in mind particularly the requirements of schools of technology.

The Life of the Ancient Greeks. By Charles Burton Gulick. Pp. 373. Price, \$1.40. New York: D. Appleton & Co.

Reviewed in October issue.

The Canterbury Pilgrims: A Comedy. By Percy Mackaye. Pp. viii + 208. New York: The Macmillan Co.

The author dedicates this interesting production to Mr. Sothern, and we hope he enjoyed it as much as did the writer of this notice.

Co-Education: A Series of Essays. By various authors. Edited by Alice Woods. Pp. vii + 148. New York: Longmans, Green & Co.

The plan of this book is to get practical workers to record their experiences, and each writer takes up, as far as possible, some special point in which he or she feels great interest. The day-school problem as well as the boarding-school problem is

discussed. This is an important book, and shows how the idea of co-education is growing in England. We hope to publish an extended review of it.

Wood Folk at School. By William J. Long. Pp. vi + 186. Boston: Ginn & Co.

Mr. Long's books are well known, and his *School of the Woods* has done much, even in these days of heated interest in nature-study, to stimulate still greater interest. His encounter with Mr. Burroughs in the *Atlantic* seems not to have abated his zeal or his popularity.

Picciola. Edited by O. P. Super. Pp. iv + 222. Boston: D. C. Heath & Co.

This little story, published in 1836, won the Montyon Prize in the French Academy. This prize is given for such books as are calculated to promote morality and religion.

Our Benevolent Feudalism. By W. J. Ghent. Pp. 200. New York: The Macmillan Co.

A Text-Book of Physics. By R. A. Lehfeldt. Pp. 300. New York: Longmans, Green & Co.

This book has been written from the point of view of the student of medicine, in the hope of attracting attention to the intimate dependence of physiology on physical principles, and at the same time supplying a practical handbook of moderate dimensions containing so much of physics as the student, among his many other claims, can find time for.

Cuentos Castellanos. By Mary D. Carter and Catharine Malloy. Pp. 200. Boston: D. C. Heath & Co.

Tennyson's Gareth and Lynette, Lancelot and Elaine, and The Passing of Arthur. By Sophie Chantal Hart. Pp. 125. Price, 50 cents. New York: Longmans, Green & Co.

Irving's Oliver Goldsmith. By Lewis B. Semple. Pp. 296. Price, 50 cents. New York: Longmans, Green & Co.

Boys' Self-Governing Clubs. By Winifred Buck. Pp. ix + 218. New York: The Macmillan Co.

This book ought to be read along with Lee's *Constructive and Preventive Philanthropy*, published by this same firm. This book is not only a record of experience, but has very valuable suggestions for those who are interested in the salvation of boys. This is a phase of social work in our large cities in which the school, and especially the principals of our schools, ought to take an active interest. The social efficiency of the school ought to be greater, and this is one of the ways of reaching that desirable end.

Organic Chemistry. By William A. Noyes. Pp. xvii + 534. Price, \$1.50. New York: Henry Holt & Co.

The author says that his attempt in this book is to present the fundamental principles of organic chemistry for the use of beginners. We hope to publish an extended review.

Constructive and Preventive Philanthropy. By Joseph Lee. Pp. 240. New York: The Macmillan Co.

This is a book for the times, full of suggestions for bettering the social conditions. The chapters on playgrounds, baths, and gymnasiums are especially interesting.

Introduction to Botany. By William Chase Stevens. Pp. 560. Price, \$1.50. Boston: D. C. Heath & Co.

This book is intended for a year's course in botany in the high school. Much stress is laid on laboratory work. The recommendations of the Report of the Committee on College Entrance Requirements have been carefully considered.

Barnas Sears. By Alvah Hovey. Pp. 180. Chicago: Silver, Burdett & Co.

This appreciation of the life and work of a man who filled such important positions in the educational work of this country is a real contribution to the history of our education. Mr. Sears was professor and president of the College at Newton, secretary of the Massachusetts Board of Education, professor and president of Brown University, and agent of the Peabody Educational Fund.

A Short History of Rome. By W. S. Robinson. Pp. 486. Price, \$1.12. New York: Longmans, Green & Co.

A compact, interesting and well-planned book.

The Making of Our Middle Schools. By Elmer E. Brown. Pp. 547. New York: Longmans, Green & Co.

Mr. Brown wrote much on the history of our secondary-school system, and we were led to expect that some day he would give us a book that would for years be the standard work on that subject. We have not been disappointed, and this book, with its wealth of detail will be the valuable reference book for those who are interested in the development of secondary education in this country. We hope to publish a comprehensive review shortly.

LITERARY NOTES ON RECENT BOOKS.

MISS INIS H. WEED, in the *Commons* for July, 1903, gives the following interesting discussion of *The Place of Industries in Elementary Education*:

"Miss Dopp seems to have absorbed the best that Darwin, Froebel, and Professor Dewey have given to the educational world, and after several years' teaching has made an attempt to supply the need, which Miss Jane Addams and many others have so keenly felt, of giving a historic background to the great mass of workers in an industrial society daily growing more complex. 'As the end becomes farther and farther removed,' she writes, 'the worker, no longer being able to perceive the whole process of production, has need of a greater consciousness of collective life' in order to maintain the quality of his life and work.

"The main content of the book is devoted to showing the parallel between the industrial activities of society from primitive times to the present and the psychical attitudes of the child. She points out that our industrial development does not differ organically from that of the past, but in its complexity. In simple social groups, industry has been the matrix holding the other interests of life, as art and science, until they were strong enough to stand alone, and because industry is the very sub-structure of society, conditioning all other activities which should have a place in the education of the young. The psychologists have found that just as society has passed through the different industrial epochs—first, the period of domestic economy, including the hunting, fishing, pastoral, and agricultural stages, the ages of metals, travel, trade and transportation, the city, state and the feudal system; second, the period of town economy or the handicraft system; and, third, our own period of national economy or the factory system—so the child passes through the same physical attitudes in relation to industry.

"It is out of the question to add more to our already overcrowded school curriculum. Instead, a reconciliation must be brought about between the child and the subjects already there. The introduction of industry in an organic way would do this, each new study being taken up as the content of life is reached which gave rise to it. One chapter in particular, the outgrowth of her endeavor to carry out this method in her teachings, is rich in suggestions. This working up through the more fundamental processes of life, and finding out how the need for each science, art, and industry arose, and their consequent development, will afford a measurement by means of which the child can interpret the materials of the present which are presented to him in less direct ways. 'Practical activity, which is an expression of the child's interests and capacities, socialized by racial experience, is not only the best means, but the only means thus far discovered by which the child can organize the subject-matters of education. It finds its justification in the race parallel, in the fact that it is the way the child learns before he comes to school, the way he can lay the best basis for the later activities of life, and the way he will continue to learn after the walls of the schoolroom are left behind.'

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HON. FRANK ALPINE HILL.

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